



SAMSUNG FACSIMILE SF-515

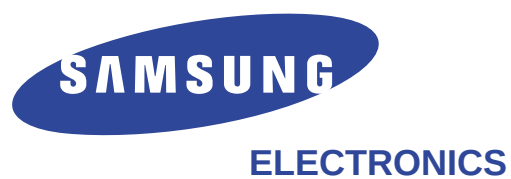
SERVICE *Manual*

SAMSUNG FACSIMILE



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This service manual is also provided on the web,
the ITSELF system Samsung Electronics Co., Ltd.
“<http://itself.sec.samsung.co.kr>”

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1. Precautions

Please read the following carefully to prevent any accidents and not to damage the unit during service.

1-1 Safety Precautions

1. Safety Precautions

There are some electric or machinery parts with safety related property. If the parts replaced are different from the original, the safety may not function. Even if the part could allow higher voltage than that of the part used, do not replace it and use a regular product clarified in specifications.

2. Be careful not to leave a switch, a cover or a safety device out when reinstalling or assembling the product after repair.

3. Replacing Precautions

Do not change or add parts as you like. You cannot benefit from such a remodeled product at your will during the term of guarantee.

4. You must replace overheated or damaged parts or cords with regular products. Please solve the problem causing any damage or overheating and troubles beforehand.

Especially mind the safety on the part with this mark.



You must use regular parts described in specifications for the parts inflammable and where the current can be flown. Otherwise any hazard such as an electric shock or a fire could occur.

LASER STATEMENT (LASERTURVALLISUUS)

WARNING : NEVER OPERATE AND SERVICE THE PRINTER WITH THE PROTECTIVE COVER REMOVED FROM LASER/SCANNER ASSEMBLY. THE REFLECTIVE BEAM, ALTHOUGH INVISIBLE, CAN DAMAGE YOUR EYES.

Class 1 laser product

Luokan 1 laserlaite
Klass 1 laser apparat

Allonpituus 770-795nm
Teho 0.3mW±0.03mW



CAUTION

INVISIBLE LASER RADIATION WHEN THIS COVER OPEN. DO NOT OPEN THIS COVER.

VORSICHT

UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEOFFNET. NICHT DEM STRAHL AUSSETZEN.

ATTENTION

REYONNEMENT LASER INVISIBLE EN CAS D'OUVERTURE. EXPOSITION DANGERUSE AU FAISCEAU.

ATTENZIONE

RADIAZIONE LASER INVISIBLE IN CASO DI APERTURA. EVITARE L'ESPOSIZIONE LA FASCIO.

PRECAUCION

REDIACION LASER INVISIBLE CUANDO SE ABRE. EVITAR EXPONERSE AL RAYO.

CAUTION : Avoid exposure to invisible laser radiation when the development unit is not installed.

1-2 Precautions on Disassembly and Reassembly

Very careful precautions should be taken when replacing parts. Before replacing, please check cables because you cannot put the cables that you removed for replacing parts into the proper place if you would not make sure of where they were connected and in which condition.

Please do the following before disassembling for a repair or replacement of parts.

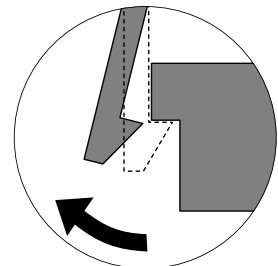
1. Pull out paper cassette, printer cartridge installed. Especially careful not to be scratched by the surface of developer or not to expose them to light.
2. Turn the power switch off.
3. Take out the power plug, printer cable from the printer.
4. Use only the same type of part as original when replacing parts.
5. Do not force to open or fasten plastic material components.
6. Be careful that small parts such as screws should not get in the printer.

7. When disassembling, assembling, also observe small components are located in place.

8. If you uncover and turn the machine over to replace some parts, toner or paper particles may contaminate the LSU window. Protect the LSU window with clean paper.

Releasing Plastic Latches

Many of parts are held in place with plastic latches. The latches break easily : release them carefully. To remove such parts, press the hook end of the latch away from the part to which it is latched.



1-3 ESD Precautions

Certain semiconductor devices can be easily damaged by static electricity. Such components are commonly called “Electrostatically Sensitive (ES) Devices”, or ESDs. Examples of typical ESDs are: integrated circuits, some field effect transistors, and semiconductor “chip” components. The techniques outlined below should be followed to help reduce the incidence of component damage caused by static electricity.

**CAUTION:**

Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

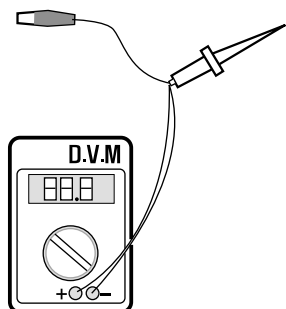
1. Immediately before handling a semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, employ a commercially available wrist strap device, which should be removed for your personal safety reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ESDs, place the assembly on a conductive surface, such as aluminum or copper foil, or conductive foam, to prevent electrostatic charge buildup in the vicinity of the assembly.
3. Use only a grounded tip soldering iron to solder or desolder ESDs.
4. Use only an “anti-static” solder removal device. Some solder removal devices not classified as “anti-static” can generate electrical charges sufficient to damage ESDs.
5. Do not use Freon-propelled chemicals. When sprayed, these can generate electrical charges sufficient to damage ESDs.
6. Do not remove a replacement ESD from its protective packaging until immediately before installing it. Most replacement ESDs are packaged with all leads shorted together by conductive foam, aluminum foil, or a comparable conductive material.
7. Immediately before removing the protective shorting material from the leads of a replacement ESD, touch the protective material to the chassis or circuit assembly into which the device will be installed.
8. Maintain continuous electrical contact between the ESD and the assembly into which it will be installed, until completely plugged or soldered into the circuit.
9. Minimize bodily motions when handling unpackaged replacement ESDs. Normal motions, such as the brushing together of clothing fabric and lifting one's foot from a carpeted floor, can generate static electricity sufficient to damage an ESD.

1-4 Tools for Troubleshooting

The following tools are recommended for safe and smooth troubleshooting described in this service manual.

1 DVM(Digital Volt Meter)

Standard: Indicates more than 3 digits.



4 Pinset

Standard: For general home use, small type.



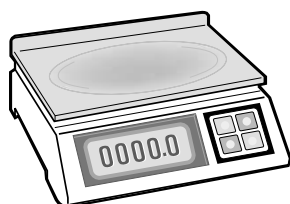
5 Cotton Swab

Standard: For general home use, for medical service.



2 Electronic Scale

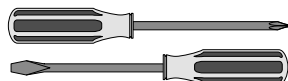
Standard: Equipment to check the weight of consumables(toner cartridge) . (The gram unit can be measured.)



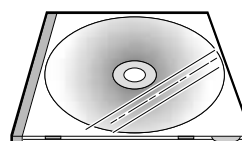
6 Cleaning Equipments a IPA(Isopropyl Alcohol)dry cloth or a soft stuff neutral detergent.

3 Driver

Standard: "-" type, "+" type (M3 long, M3 short, M2 long, M2 short)



7 Software(Driver) installation CD ROM



Note

Mind your hands not to be touched when you disassemble and reassemble PBA ASS'Y, such as the main board, SMPS, HVPS.

2. Specifications

Product specifications are subject to change without notice. See below for product specifications.

2-1 General Specifications

ITEMS	DESCRIPTION	REMARKS
Size (W X D X H)	313 X 325 X 228 mm	
Weight	7 Kg (With accessories)	
Power Rating	AC 110V ~ 120V $\pm$ 15%, 50/60Hz $\pm$ 3Hz AC 220V ~ 240V $\pm$ 15%, 50/60Hz $\pm$ 3Hz	
Operating Environment	Temperature : 10 ~ 32°C Humidity : 20 ~ 85% RH	
LCD	16*1 Char	
Halftone	64 Level	
Life	Up to 50000 Pages	

2-2 Facsimile Specification

ITEMS	DESCRIPTION	REMARKS
Compatibility	ITU G3, ECM	
Communication System	PSTN/PABX	
Modem Speed	14400bps Fax Modem	
TX Speed	Approx. 6 sec (V1.7 ECM : 14.4 kbps)	Using CCitt #1 Chart with Standard Resolution
Compression	MH/MR/MMR(ECM Mode)	
Rcv. Mode	TEL, FAX, AUTO, ANS/FAX	
Resolution	Std	Up to 200 x 100 DPI effective output
	Fine	Up to 200 x 200 DPI effective output
	Super Fine	Up to 300 x 300 DPI effective output
Memory	40 pages (Based on ITU-T No.1 Chart using standard Resolution)	Only TX
Battery B/U	Max. 30 Minutes	

2-3 Scanner

ITEMS	DESCRIPTION	REMARKS
Scan Method	Sheet-Fed CIS	
Quick Scan Speed	Approx. 6 sec	
Resolution	Up to 200 x 200 DPI effective output	
Scan Width	Max	216 mm (8.5 inches)
	Effective	210 mm (8.3 inches)
Scan Length	Max	1000 mm (39.4 inches)

2-4 Copy

ITEMS	DESCRIPTION	REMARKS
Speed	Up to 8 PPM in A4 size	
Resolution	Up to 200 x 300 DPI effective output	
Zoom Range	50 ~ 130 %	
Collate/Reverse	Yes	
Multi Copy	1 ~ 99	

2-5 Telephone

ITEMS	DESCRIPTION	REMARKS
1-Touch Dial	10 EA	
Speed Dial	80 EA	
Group Dial	10 EA	
TAD	No	
TAD I/F	Yes	
Tone/Pulse	Tone : US, UK, Korea Tone/Pulse : ETC	
No Power Operation	No	
Earth/Recall	No	
External Phone Transfer	Yes	
Caller ID	Yes (Germany, France, Canada, Australia, New Zealand, US)	

2-6 Power Supply

ITEMS	DESCRIPTION	REMARKS
Power Button	No	
Input Voltage	110V~120V, 220V~240V	
Power Consumption	Sleep Mode	less than 10 W
	Stand by	less than 70 W
	Max	less than 490 W
Power Save Mode	OFF, 5, 10, 15, 30, 45, 60 Min	

2-7 Paper Handling

ITEMS	DESCRIPTION	REMARKS
TYPE	BIN	
Input Capacity	150 Sheets / 20lb	
Optional Cassette	No	
Output Capacity	100Sheets / 20lb	
Output Control	Face up	
Media Type	Plain Paper	
Media Size	A4, Letter, Legal	
Media Weight	16~24lb	
ADF	20 Sheets / 20lb	

2-7 Consumables

ITEMS		DESCRIPTION	REMARKS
*Toner Cartridge	Initial	Up to 1,000 Pages	Using 4% Coverage Pattern
	Running	Up to 2,500 Pages	Using 4% Coverage Pattern
ADF Rubber		Up to 10K Pages Scan	
Paper Feeding Roller		Up to 50K Pages Printer	
Transfer Roller		Up to 60K Pages Print	
Fuser Unit		Up to 50K Pages Print	

* Based On ITU-T No.1 Chart Using Standard Resolution.

3. Disassembly and Reassembly

3-1 General Precautions on Disassembly

When you disassemble and reassemble components, you must use extreme caution. The close proximity of cables to moving parts makes proper routing a must. If components are removed, any cables disturbed by the procedure must be restored as close as possible to their original positions. Before removing any component from the machine, note the cable routing that will be affected.

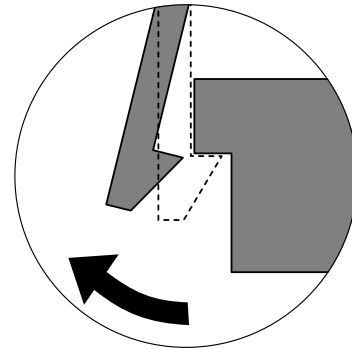
Whenever servicing the machine, you must perform as follows:

1. Check to verify that documents are not stored in memory.
2. Be sure to remove the toner cartridge before you disassemble parts.
3. Unplug the power cord.
4. Use a flat and clean surface.
5. Replace only with authorized components.
6. Do not force plastic-material components.
7. Make sure all components are in their proper position.

>> Releasing Plastic Latches

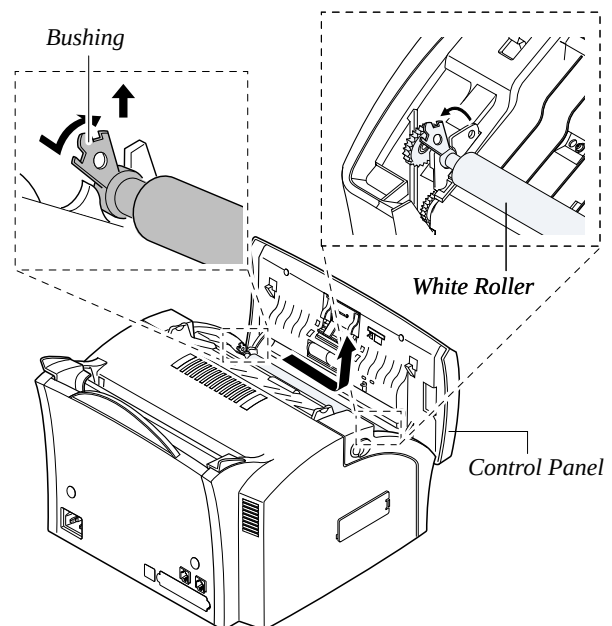
Many of the parts are held in place with plastic latches. The latches break easily; release them carefully.

To remove such parts, press the hook end of the latch away from the part to which it is latched.



3-2 White Roller

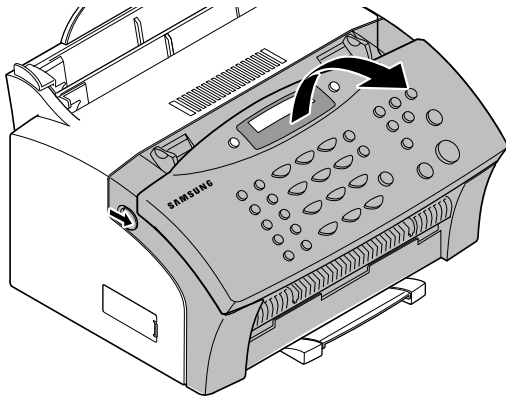
1. Open the OPE Cover.
2. Push the Bushing on the end of the Roller slightly inward, then rotate it until it reaches the slot. Then lift the Roller out.



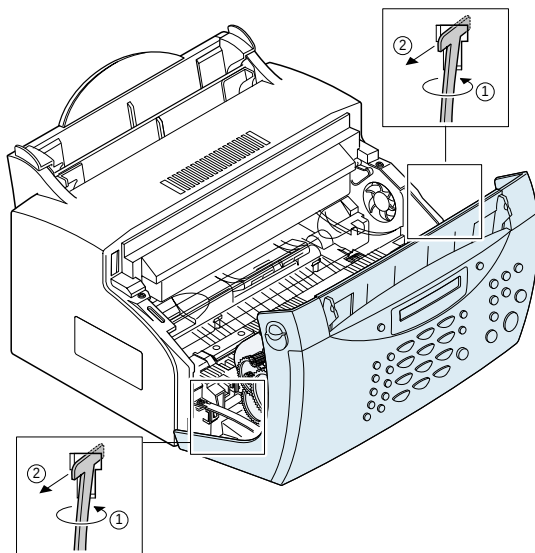
Note : Check the Roller for any dirt. If dirty, wipe it off with soft cloth dampened with water. If the Roller is heavily worn, replace it with a new one.

3-3 OPE Cover

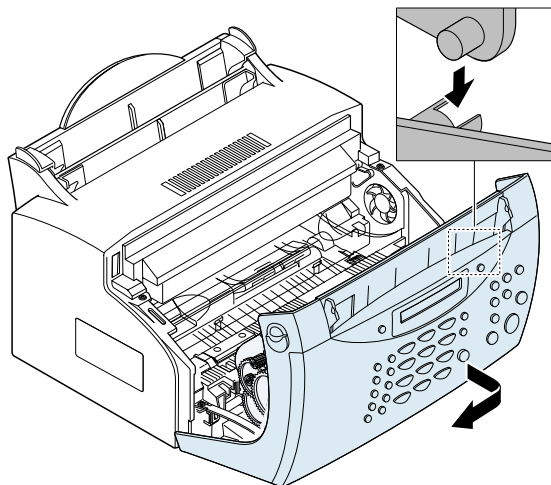
1. Pull the Cover release button on both Sides of the machine, and open the Front Cover.



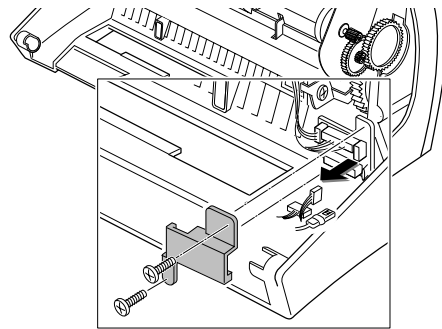
2. Remove two stoppers holding the Front Cover unit and unplug one connector and one wire.



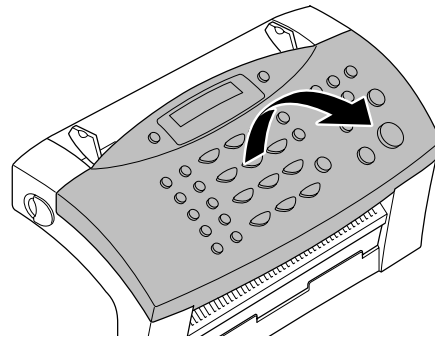
3. Pull the bottom left end of the Cover downward to unlatch the Front Cover unit and remove the Cover from the Main Frame.



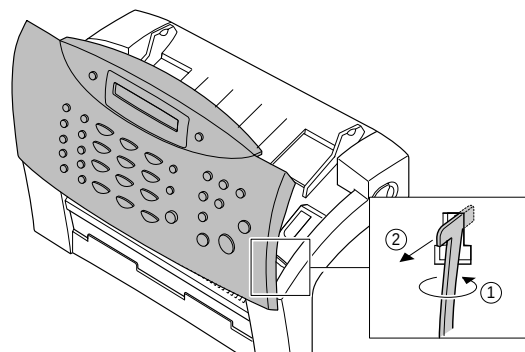
4. Remove two screws securing bracket the Scan Board, then take out the bracket the Scan Board.
5. Unplug two connectors and one wire from the Scan Board.



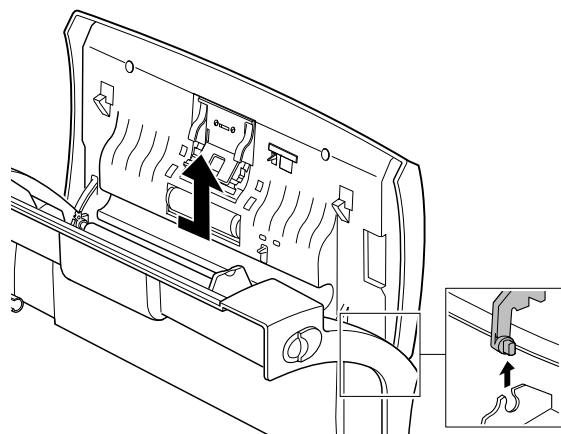
6. Lift the OPE Cover.



7. Remove the stopper holding the OPE Cover.

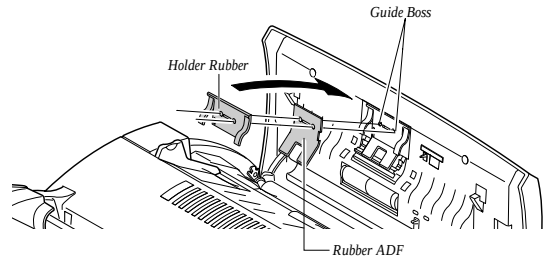
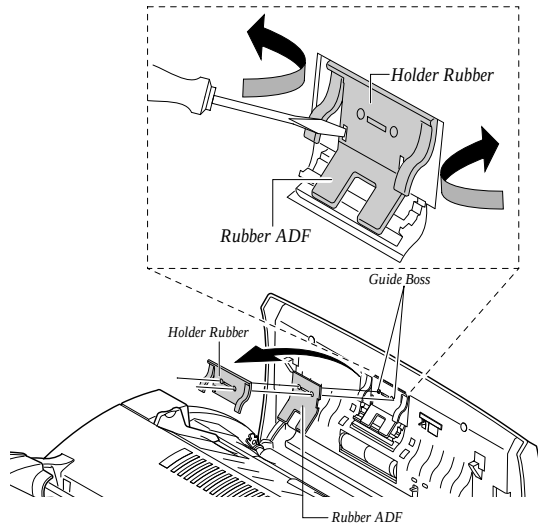


8. Unlatch the bottom ends, then remove the OPE Cover.



3-4 ADF Rubber

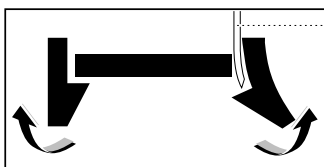
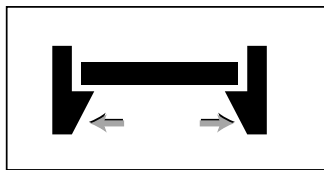
1. Open the OPE unit.
2. Insert a flat blade screw driver and pinset into the slot as shown below, and release the latches. Take out the Holder Rubber, Sheet ADF and the Rubber ADF.



Notes : • When you reassemble them, be sure that the Rubber ADF and Holder Rubber fit into the Guide boss and the Holder Rubber latches fit into the corresponding hole. Then push firmly until it clicks.

⚠ Safely Precautions :

Do not force to open or fasten plastic material components.



Pinset or
Screw Driver

3. Clean the surface of the rubber pad with IPA (Isopropyl Alcohol). After wiping it, be sure to dry it. Check the rubber wear. If the wear reaches 1/2 its original thickness, replace it with a new one.

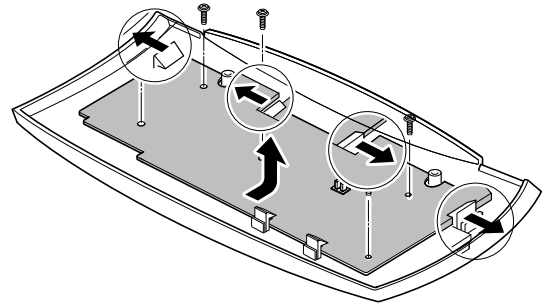
3-5 OPE Board

1. Before you remove the OPE Board, you should remove:

- OPE Cover (see page 3-3)

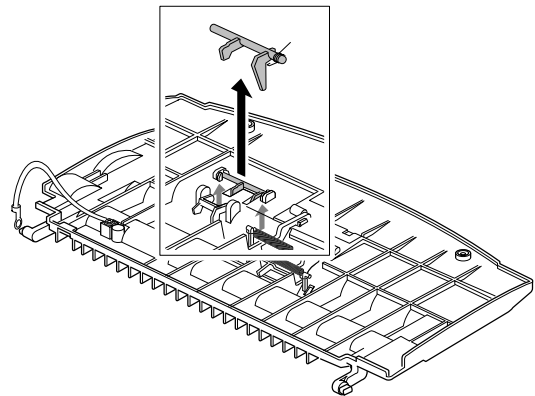
2. Remove four screws securing the OPE Board.

3. Release two latches securing the both Side of the LCD and the two of four latches securing the Board. Then remove the OPE Board.



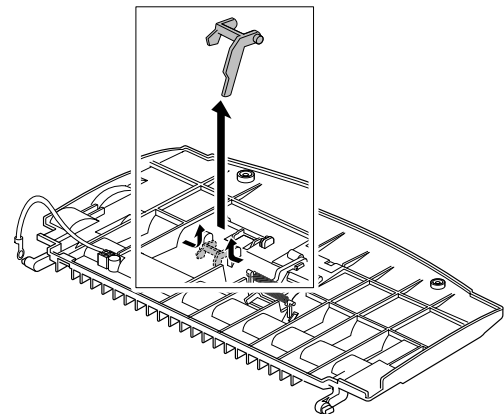
3-6 Lever Sensor Doc.

1. Unlatch the Lever Sensor Doc from the Scan Upper Frame and take it out.



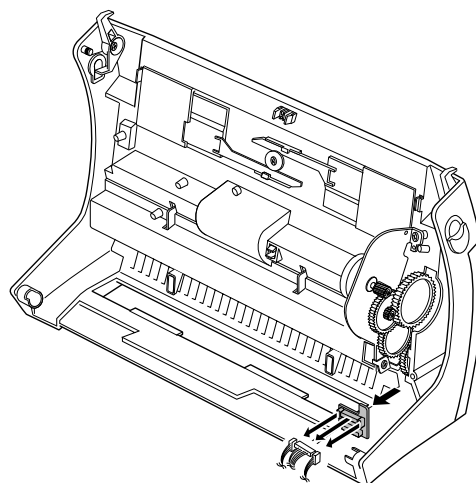
3-7 Lever Sensor Scan

1. Push the both Sides of Lever Sensor Scan inward, then unlatch and take out the Sensor Scan from the Scan Upper Frame.



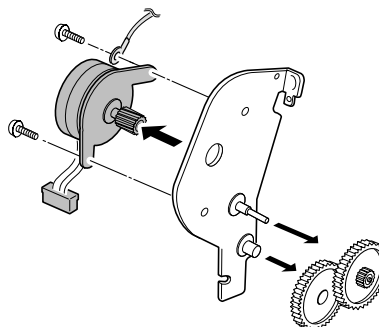
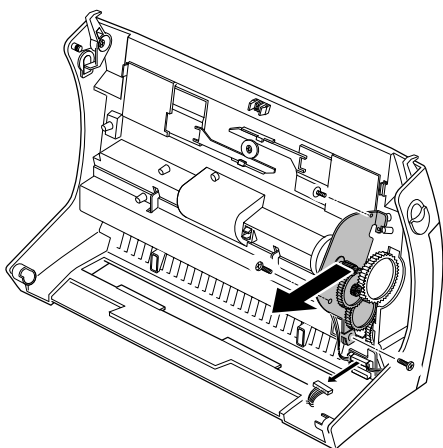
3-8 Scan Board

1. Before you remove the Scan Board, you should remove:
 - Bracket Scan Board (see page 3-3)
2. Unplug all the connectors from the Scan Board and remove the Board.



3-9 Scan Motor

1. Before you disassemble the Scan Motor, you should remove:
 - OPE Cover (see page 3-3)
 - Bracket Scan Board (see page 3-3)
2. Unplug one connector from the Scan Board.
3. Remove three screws, then remove the Motor Ass'y from the Main Frame.
4. Take out the Gear from the Motor Ass'y.
5. Remove two screws and remove the Motor.

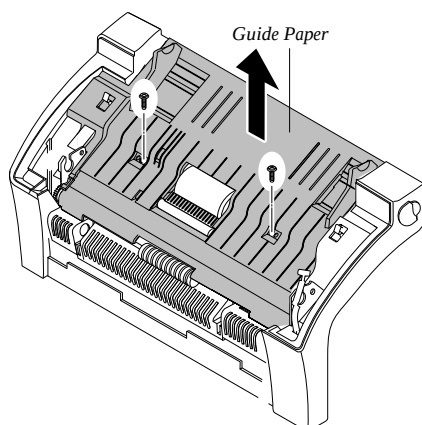


3-10 ADF Roller

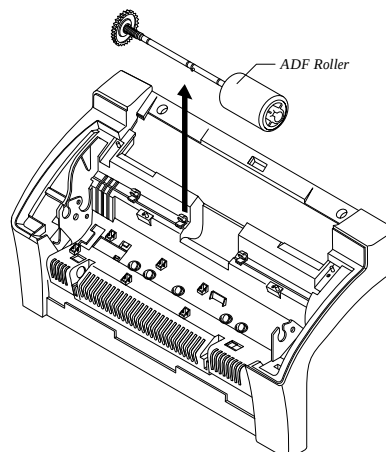
1. Before you remove the ADF Roller, you should remove:

– OPE Cover (see page 3-3)

2. Remove two screws securing the Guide Paper and remove the Guide Paper.

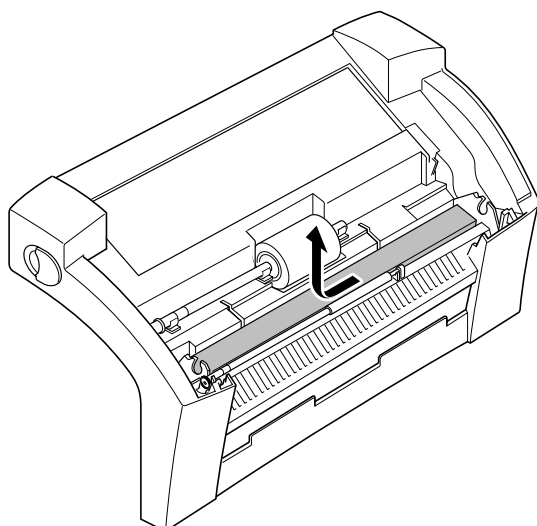


3. Remove the ADF Roller from the Scan Front Frame.

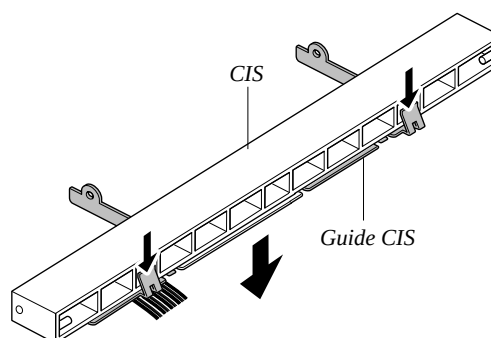


3-11 CIS

1. Remove one screw and push the CIS as shown below and lift it.

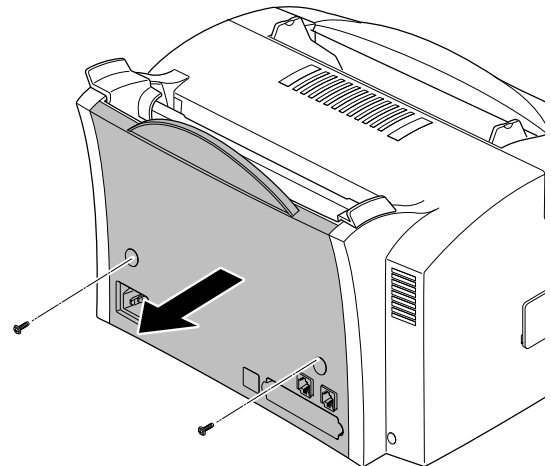


2. Separate the Dummy CIS from CIS.



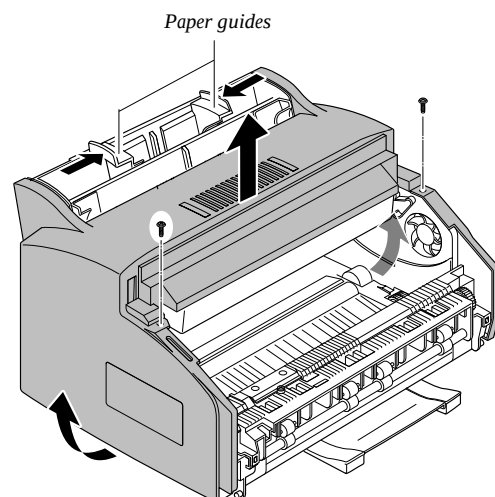
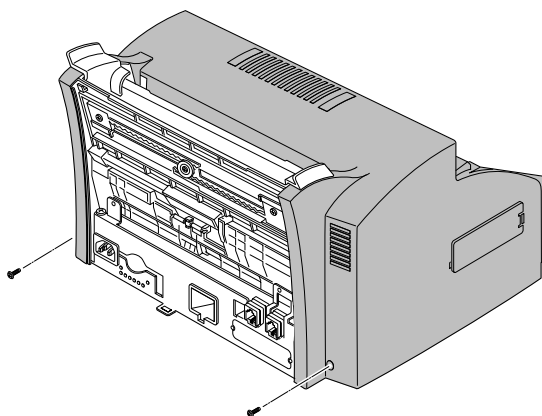
3-12 Rear Cover

1. Remove two screws.
2. Push the metal clip on the parallel port down and remove the Rear Cover from the Main Frame.



3-13 Top Cover

1. Before you remove the ADF Roller, you should remove:
 - OPE Cover (see page 3-3)
 - Rear Cover (see above)
2. Remove two screws securing the Top Cover from the back side of the machine.
3. Remove two screws and slide the left and right Paper Guides fully inward. Then spread the bottom of the Top Cover and lift the Cover to remove.

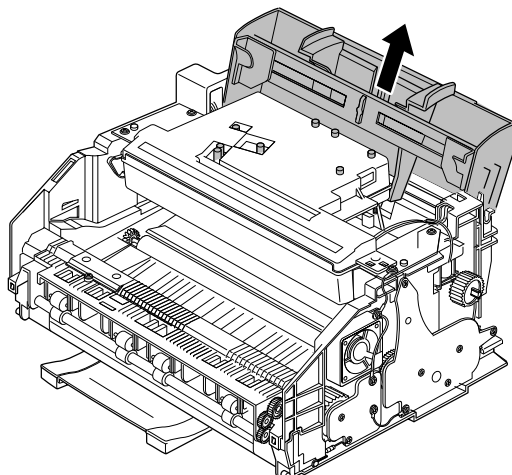


3-14 Tray

1. Before you remove the Tray, you should remove:

- OPE Cover (see page 3-3)
- Rear Cover (see page 3-9)
- Top Cover (see page 3-9)

2. Take out the Tray from the Main Frame.

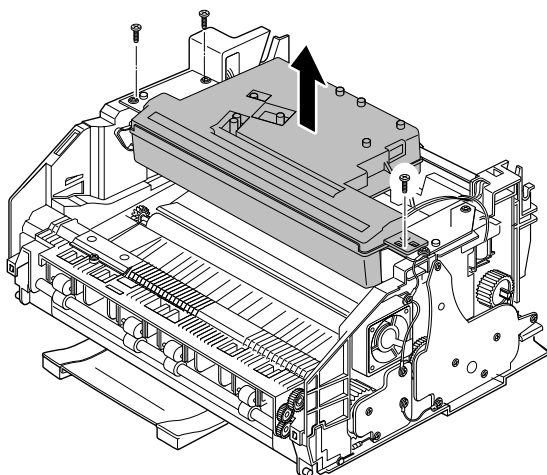


3-15 LSU

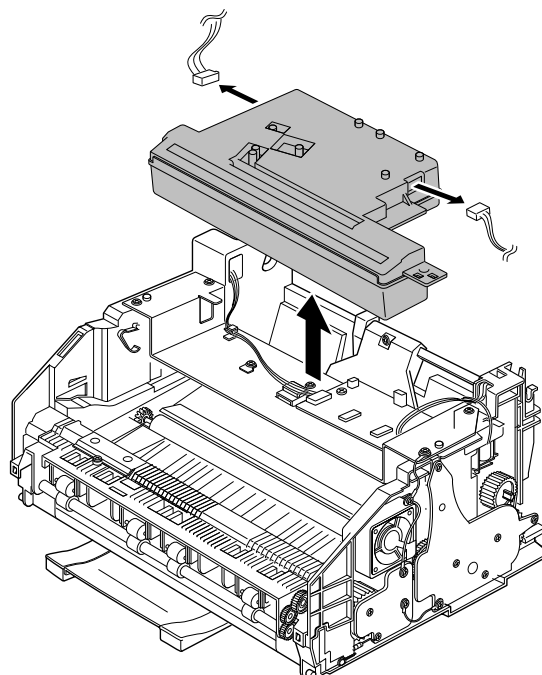
1. Before you remove the LSU, you should remove:

- All Covers (see page 3-3, 3-9)

2. Remove three screws (Black) securing the LSU.

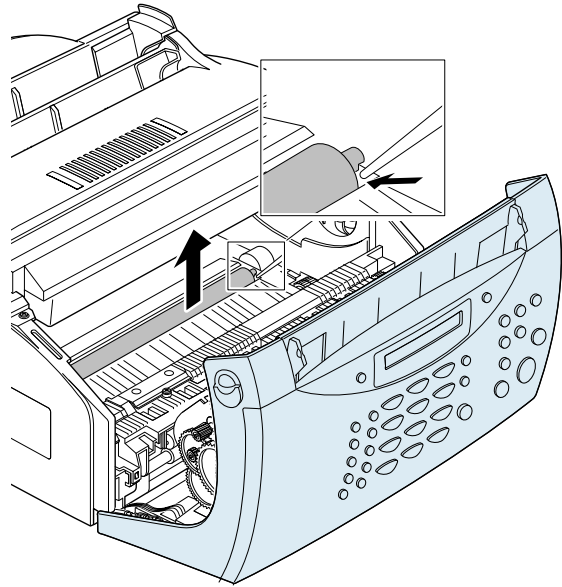


3. Unplug two connectors from the LSU and remove the LSU.



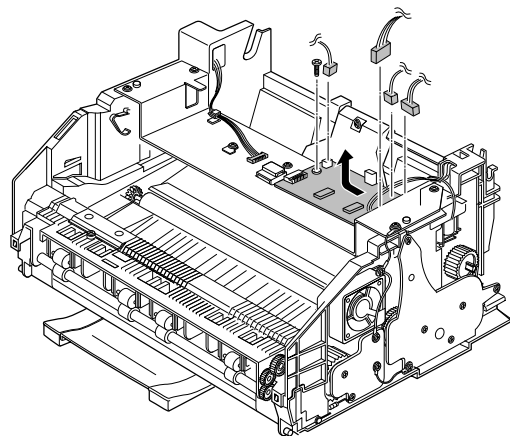
3-16 Transfer Roller

1. Pull the Cover release button on both Sides of the machine, and open the Front Cover.
2. Lift the transfer Roller using a proper tool ("-" Driver) and take out it.



3-17 Engine Board

1. Before you remove the Engine Board, you should remove:
 - All Covers (see page 3-3, 3-9)
 - LSU (see page 3-10)
2. Unplug five connectors and remove one screw(Black) from the Engine Board, then remove it.

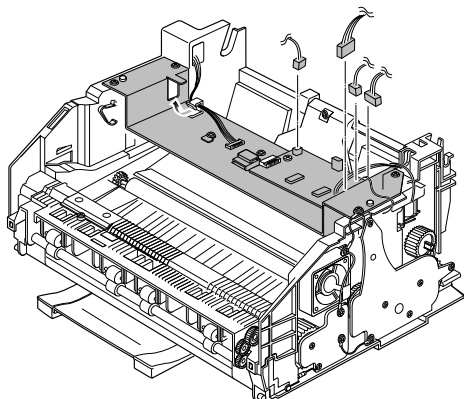


3-18 Pick-up Roller Ass'y

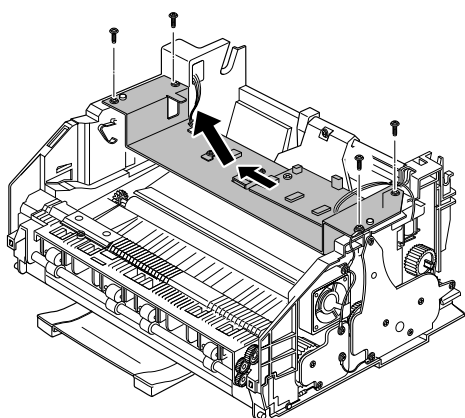
1. Before you remove the Pick-up Roller Ass'y, you should remove:

- All Covers (see page 3-3, 3-9)
- LSU (see page 3-10)

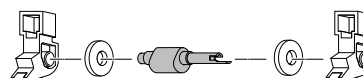
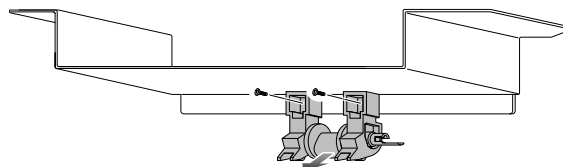
2. Unplug all the connectors from the Engine Board.



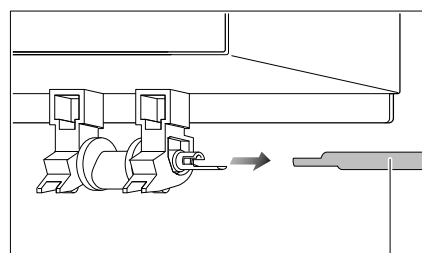
3. Remove four screws (Black)securing the Plate Upper and remove the Plate Upper as below.



4. Remove two screws and remove the roller from the Plate.



Note : When you reassemble the Pick-up Roller, make sure that the right end of the Pick-up Roller fits into the Pick-up Gear shaft.



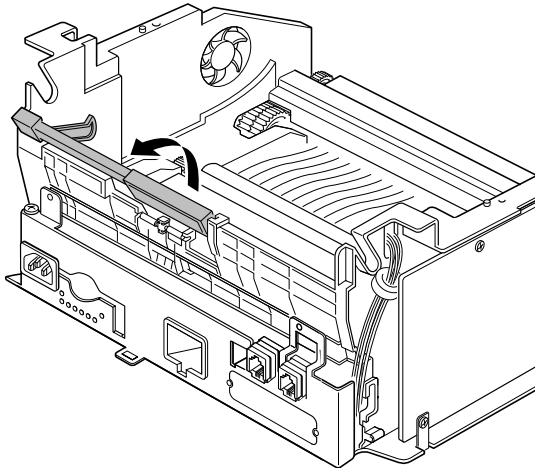
Pick-up gear shaft

3-19 Knock-up Ass'y

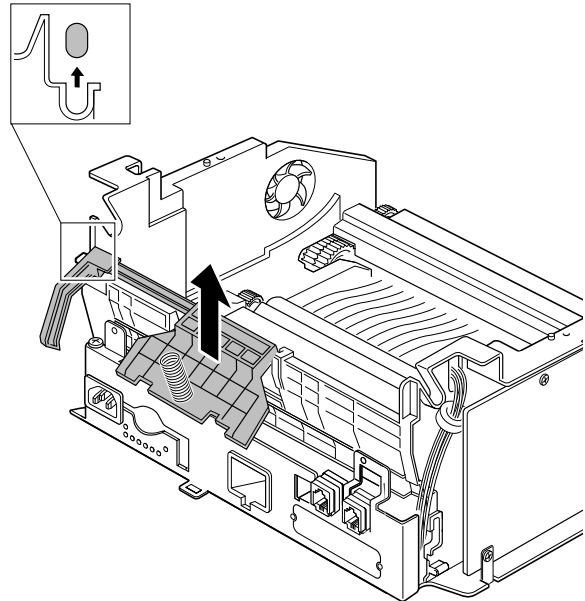
1. Before you remove the Knock-up Ass'y, you should remove:

- All Covers (see page 3-3, 3-9)
- LSU (see page 3-10)
- Plate Upper (see page 3-12)

2. Pull the Knock-up Ass'y fully backward.



3. Remove the Knock-up Ass'y from the Main Frame.

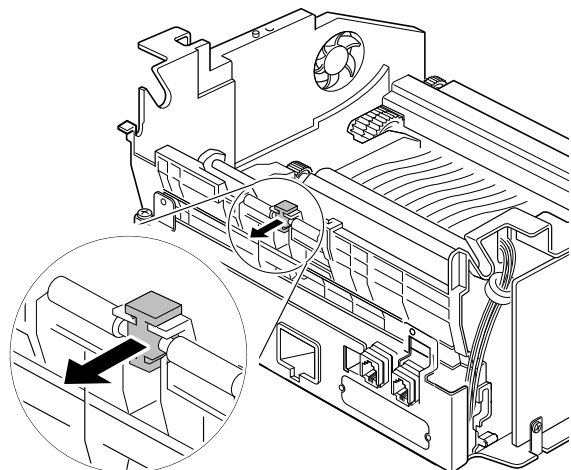


3-20 Cap-Pad

1. Before you remove the Cap-pad, you should remove:

- All Covers (see page 3-3, 3-5)
- LSU (see page 3-10)
- Plate Upper (see page 3-12)
- Knock-up Ass'y (see above)

2. Take out the Cap-pad from the Main Frame.

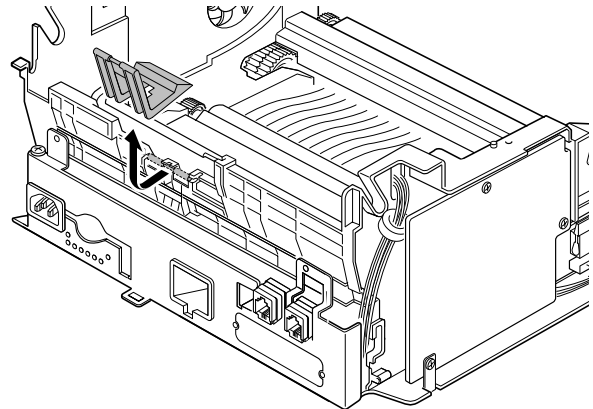


3-21 Holder-Pad

1. Before you remove the Holder-pad, you should remove:

- All Covers (see page 3-3, 3-9)
- LSU (see page 3-10)
- Plate Upper (see page 3-12)
- Knock-up Ass'y (see 3-13)
- Cap-Pad (see 3-13)

2. Remove the Holder-pad from the Main Frame.

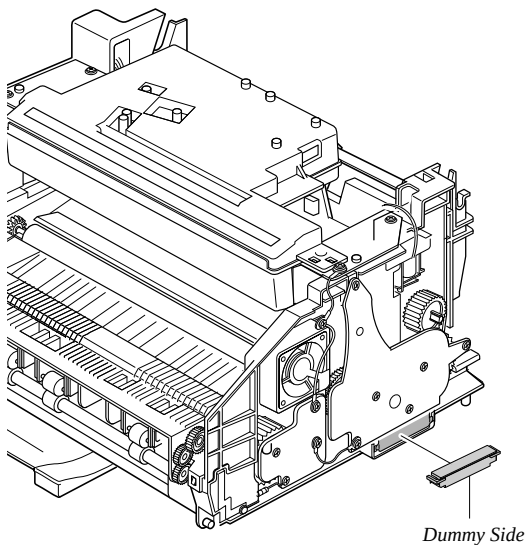


3-22 Motor Ass'y

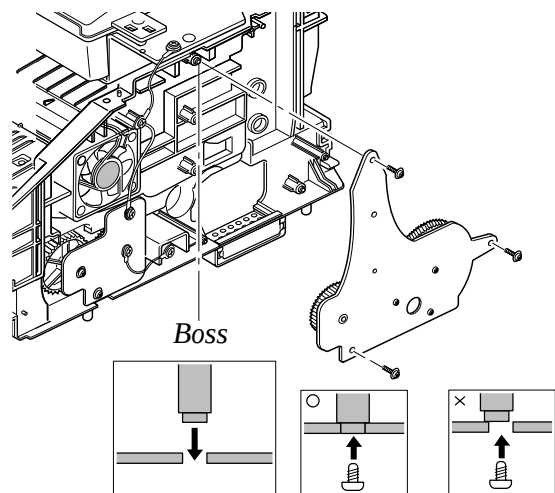
1. Before you remove the Motor Ass'y, you should remove:

- All Covers (see page 3-3, 3-9)

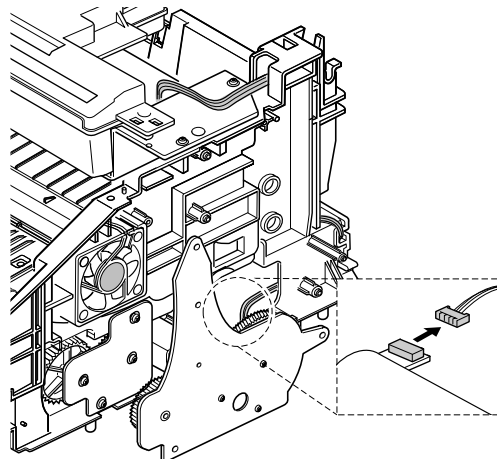
2. Remove three screws(Sliver) securing the Motor Ass'y and remove the Dummy Side, then remove the Motor Ass'y.



Note : When you reassemble the Motor Ass'y, make sure that the boss shown in the figure below fit into the corresponding screw holes on the Motor Ass'y to allow the screws to be fastened properly.

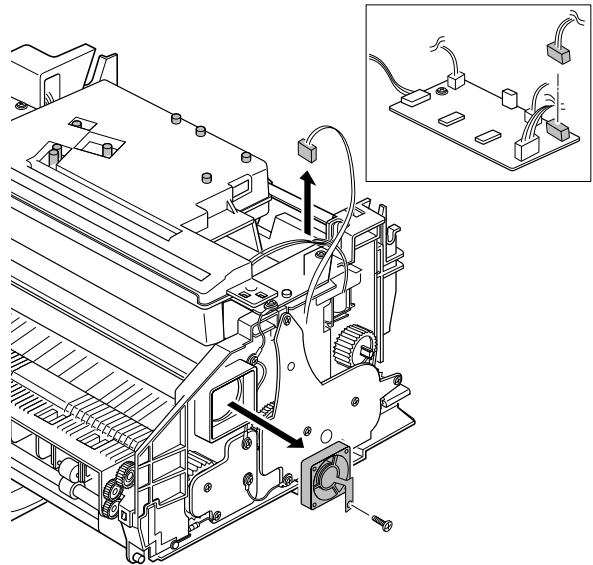


3. Unplug one connector from the Motor Ass'y.



3-23 Fan

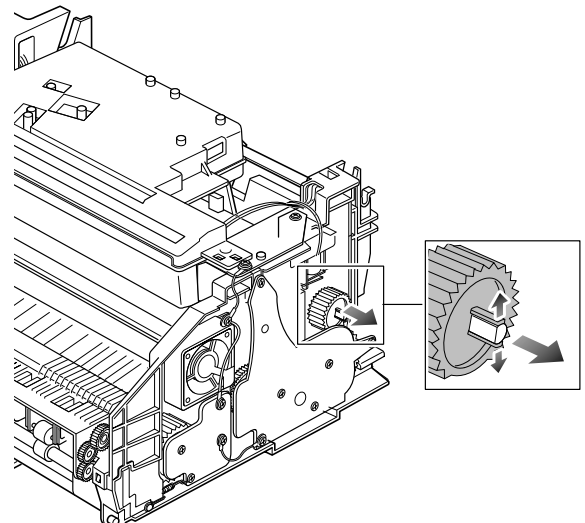
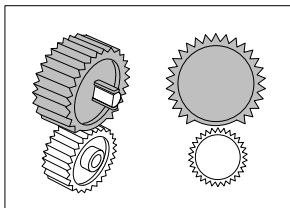
- Before you remove the Fan, you should remove:
 - All Covers (see page 3-0)
 - Motor Ass'y (see page 3-15)
- Unplug one connector from the Engine Board and remove the Fan.



3-24 Gear Pick-up Ass'y

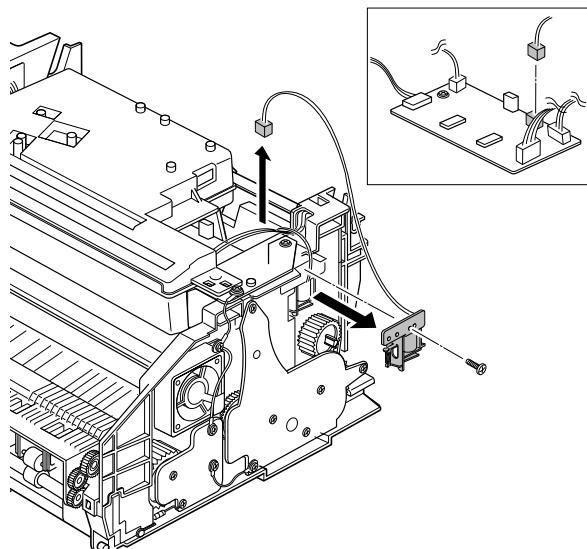
- Before you remove the Gear Pick-up Ass'y, you should remove:
 - All Covers (see page 3-3, 3-9)
- Release two snap-fits and remove the Gear Pick-up Ass'y from the Main Frame.

Note: When reassembling, make sure that the direction of the Gear is correct.



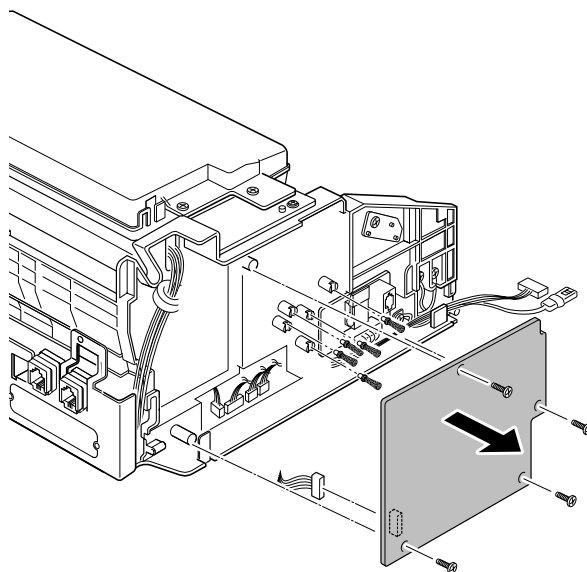
3-25 Solenoid

1. Before you remove the Solenoid, you should remove:
 - All Covers (see page 3-3, 3-9)
2. Unplug one connector from the Engine Board and remove one screw, then remove the Solenoid.



3-26 HVPS Board

1. Before you remove the HVPS Board, you should remove:
 - All Covers (see page 3-3, 3-9)
2. Remove three screws and one connector from the HVPS Board, then remove it.



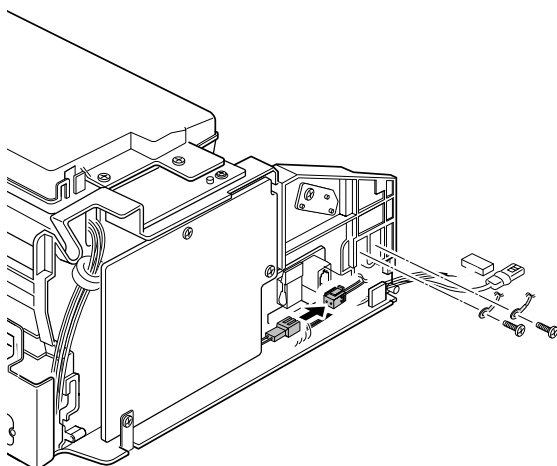
Note : when reassembling, make sure that the terminal is five.

3-27 Fuser Ass'y

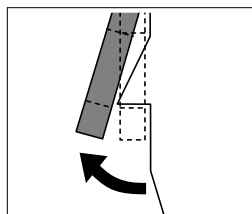
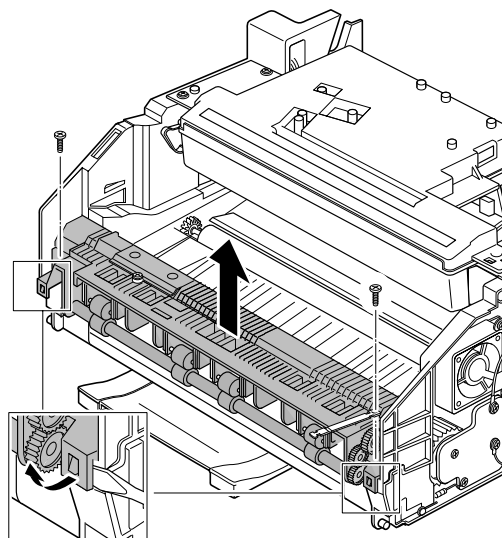
1. Before you remove the Fuser Ass'y, you should remove:

– All Covers (see page 3-3, 3-9)

2. Remove two wires after remove two screws from the Main Frame and one connector from the inter connector.

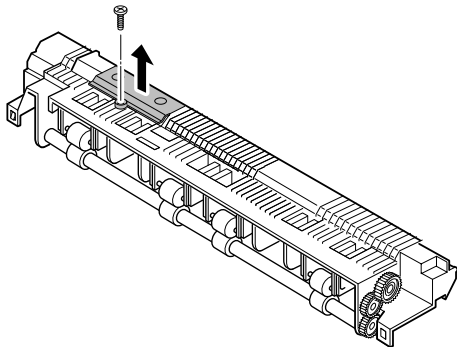


3. Remove two screws and unlatch the Fuser Ass'y using a proper tool.

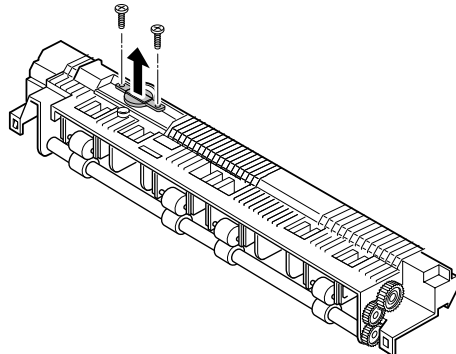


3-28 Thermostat

1. Remove one screw and remove the Cover Thermostat from the Fuser Ass'y.



2. Remove two screws and take out Thermostat from the Fuser Ass'y.

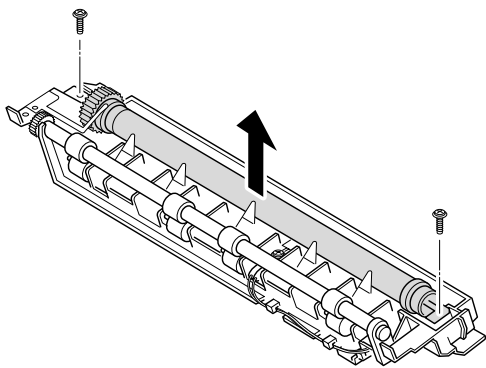


3-29 Halogen Lamp

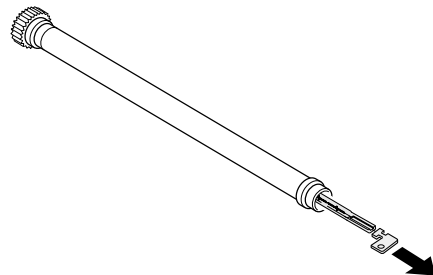
1. Before you remove the Thermostat, you should remove:

- All Covers (see page 3-3, 3-9)
- Fuser Ass'y (see page 3-17)

2. On the Fuser Ass'y, remove the two screws, then remove the Heat Roller.

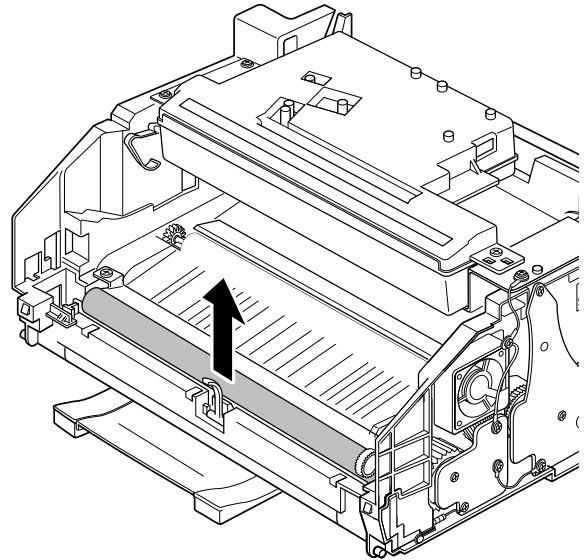


3. Remove the Halogen Lamp from the Heat Roller.



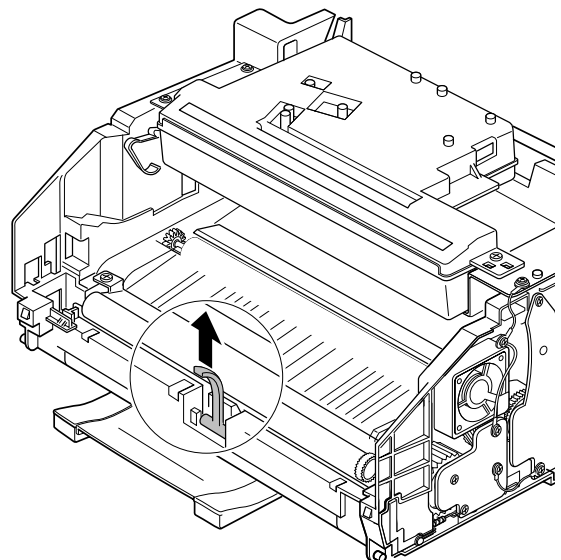
3-30 Pressure Roller

1. Before you remove the Pressure Roller, you should remove:
 - All Covers (see page 3-3, 3-9)
 - Fuser Ass'y (see page 3-17)
2. Lift and remove the Pressure Roller from the Main Frame.



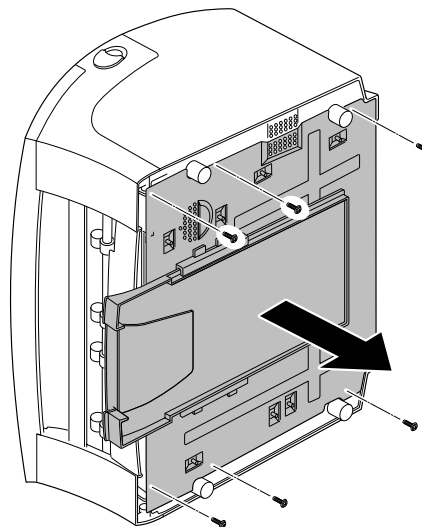
3-31 Actuator-Exit

1. Before you remove the Actuator-Exit, you should remove:
 - All Covers (see page 3-3, 3-9)
 - Fuser Ass'y (see page 3-17)
2. Lift and remove the Actuator-Exit from the Main Frame.



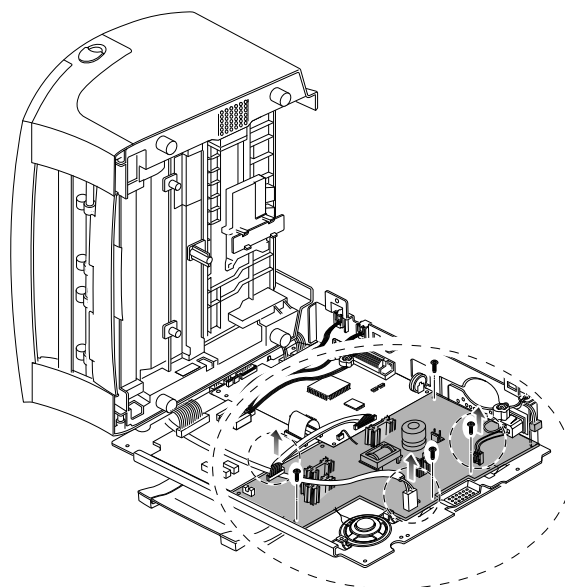
3-32 Shield Engine Ass'y

1. Before you remove the Shield Engine Ass'y, you should remove:
 - Rear Cover (see page 3-9)
2. Remove six (Silver) screws securing the Shield Engine Ass'y and remove the Shield Engine Ass'y from the Main Frame.



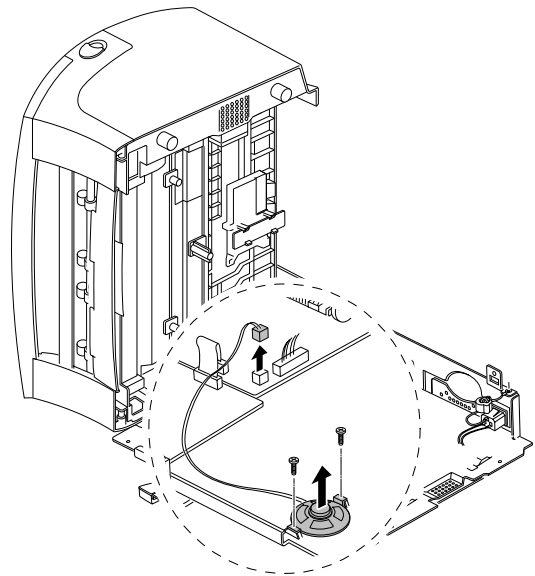
3-33 SMPS Board

1. Before you remove the SMPS Board, you should remove:
 - Rear Cover (see page 3-9)
 - Shield Engine Ass'y (see page 3-19)
2. Remove four screws (golden) and two connectors, then remove the SMPS Board from the Main Frame.



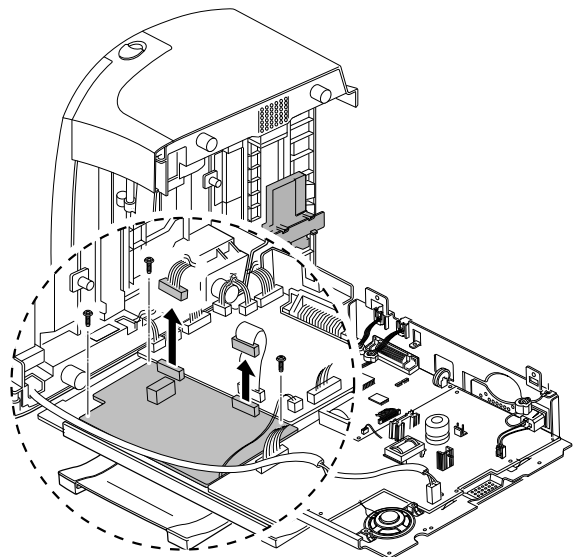
3-34 Speaker

1. Before you remove the Speaker, you should remove:
 - Rear Cover (see page 3-9)
 - Shield Engine Ass'y (see page 3-19)
 - SMPS Board (see above)
2. Remove one connector that connects the Speaker to the Main Board and two screws securing the Speaker, then remove it.



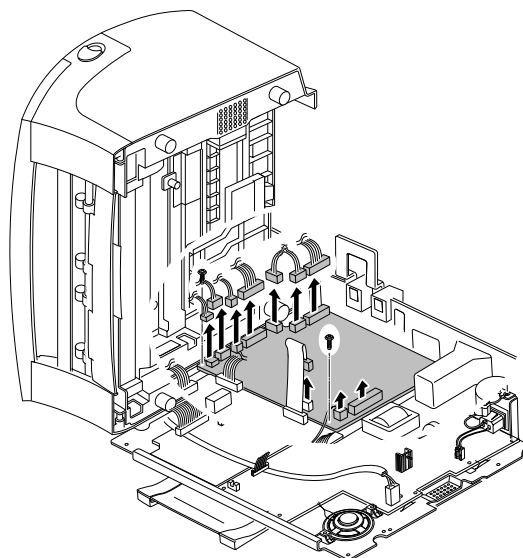
3-35 LIU Board

1. Before you remove the LIU Board, you should remove:
 - Rear Cover (see page 3-9)
 - Shield Engine Ass'y (see page 3-19)
2. Remove three screws and three connectors from the LIU Board, then remove it from the Main Frame.



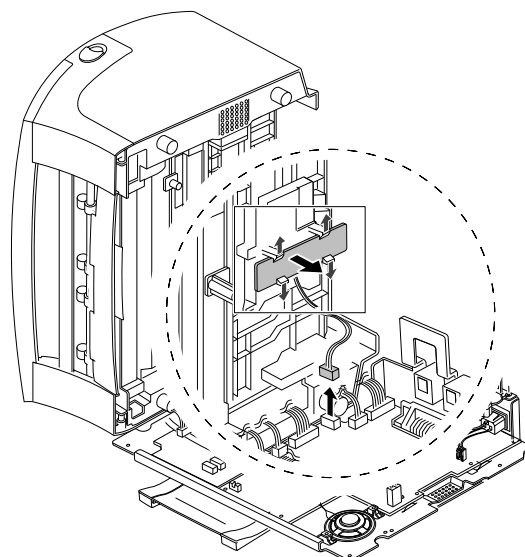
3-36 Main Board

1. Before you remove the Main Board, you should remove:
 - Rear Cover (see page 3-9)
 - Shield Engine Ass'y (see page 3-19)
2. Remove two screws(Golden) and all the connectors from the Main Board, then remove it.



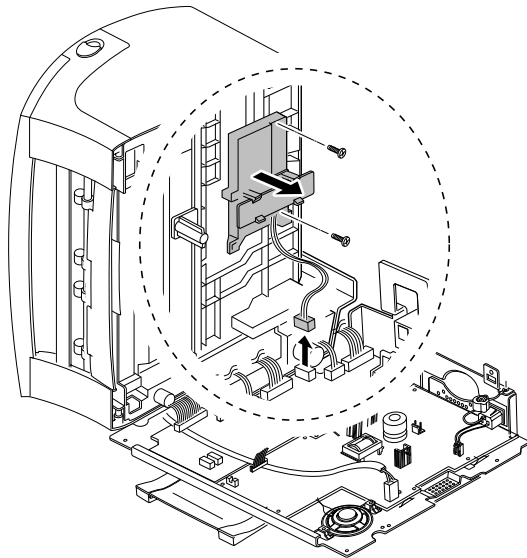
3-37 Sensor Board

1. Before you remove the Sensor Board, you should remove:
 - Rear Cover (see page 3-9)
 - Shield Engine Ass'y (see page 3-19)
2. Release four snap-fits securing the Sensor Board and unplug one connector from the Main Board, then remove it.

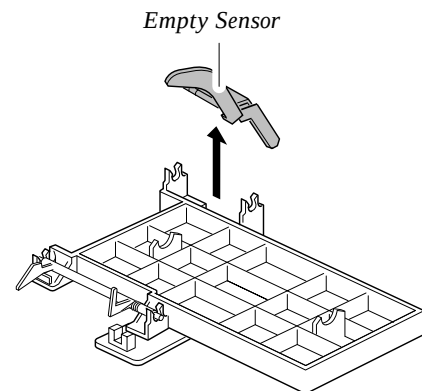
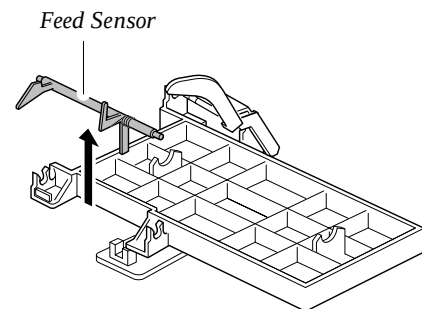


3-38 Actuator Empty/Feeder

1. Before you remove the Actuator Empty/Feeder, you should remove:
 - Rear Cover (see page 3-9)
 - Shield Engine Ass'y (see page 3-19)
2. Remove one connector from the Main Board and two screws securing the Holder Feed Ass'y, then remove it.



3. Remove the Feed Sensor and the Empty Sensor.

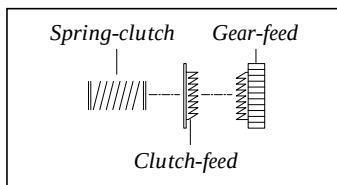
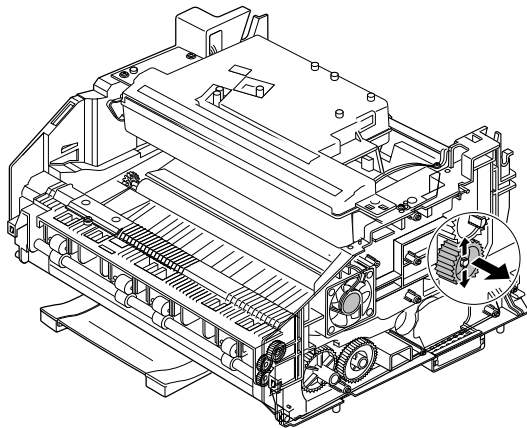


3-39 Roller Feeder

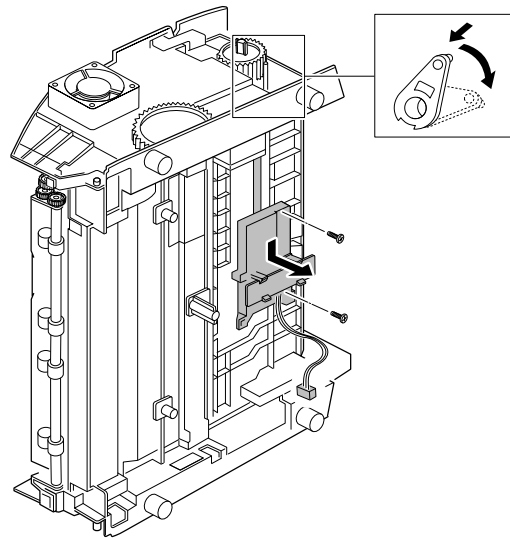
1. Before you remove the Roller Feeder, you should remove:

- All Covers (see page 3-0)
- Motor Ass'y (see page 3-15)

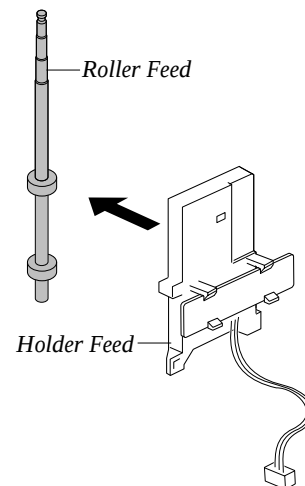
2. Release two snap-fits and remove the Gear-Feed, Clutch-Feed, and the Spring-Clutch.



3. Rotate the Pick-up Bushing as shown below and remove Holder Feeder Ass'y and Roller Feeder.



4. Separate the Roller Feeder from the Holder Feeder Ass'y.



4. Troubleshooting

4-1 Preventative Maintenance

The cycle period outlined below is a general guideline for maintenance. The example list is for an average usage of 50 transmitted and received documents per day.

Environmental conditions and actual use will vary these factors. The cycle period given below is for reference only.

	COMPONENT	CLEANING CYCLE	REPLACEMENT CYCLE	SOLUTION
SCANNER	ADF Rubber	6 Months	10,000 Pages	
	ADF Roller	1 Year	20,000 Pages	
	White Roller	As Needed	10,000 Pages	
	CIS	As Needed		
PRINTER	Cartridge		2,500 Pages	
	Pickup Roller		60,000 Pages	
	Feed Roller		50,000 Pages	
	Transfer Roller		60,000 Pages	
	Fuser		50,000 Pages	

4-2 Tech Mode

In Tech mode, the technician can perform various tests to isolate the causes of a malfunction, and set the technical option features to customize the machine depending on the user's operation environment.

To access TECH mode

: Press SETUP, #, 1, 9, 3, 4 in sequence, and the LCD displays 'TECH' in the standby mode screen. While in TECH mode, the machine still performs all normal operations.

To return to the normal user mode

: Turn the power off, then back on.

The technical options you have set in TECH mode are not changed unless you clear the machine's memory in TECH mode.

To communicate via direct connection with another fax machine, press OHD/V.REQ followed by Start/Enter.

• Caution :

When you finish operating in Tech Mode, you must turn the power Off/On.

4-2-1 System Data List in TECH MODE

Function	Item	Content
FAX NUMBER/NAME	FAX NUMBER FAX NAME	
TIME/DATE SETUP	DATE FORMAT TIME/DATE	EUROPE/USA
SYSTEM SETUP	LANGUAGE SENDING MEMORY SEND FROM CONFIRM FAX PAPER SIZE AUTO REDUCTION DISCARD SIZE RINGS TO ANSWER STAMP RCV.NAME RCV.START CODE ECM MODE CALLER ID JUNK FAX BARRIER DRPD MODE	ENG/GER/FRE/ITA/SPA/POR/DUT ON/OFF ON/OFF/ERROR LETTER/A4/LEGAL ON/OFF 0~30mm 1~7 ON/OFF 0~9 ON/OFF ON/OFF ON/OFF ON/OFF
TECH MODE	MODEM SPEED DIALING MODE SEND FAX LEVEL RCV. FAX LEVEL FLASH TIME(RECALL TIME) PAUSE TIME REDIAL INTERVAL REDIAL COUNT DP MAKE/BREAK SILENCE TIME ERROR RATE IGNORE TONER EMPTY	2.4/4.8/7.2/9.6/12.0/14.4 TONE/PULSE 0~15 40~50 80/280/600 1~9 1~15 0~5 40/60~33/67 UNLIMITED/12SEC 5%/10% ON/OFF
GROUP DIAL SETUP	GROUP NO[1-10]	
VOLUME SETUP	ALARM VOLUME KEY VOLUME	ON/OFF ON/OFF
MEMORY CLEAR	FAX NUMBER/NAME DIAL/SCHEDULE JOURNAL DEFAULT SETUP	
MAINTENANCE	CLEANING DRUM ADJUST SHADING REMOTE TEST NOTIFY TONER LOW ROM TEST CIS TEST DRAM TEST SWITCH TEST DTMF TEST TONER COUNT PRINTING INFO PROGRAM DOWNLOAD	OFF/ON OFF/ON ROM OK! (VERSION) DRAM OK OFF/ON LOCAL/REMOTE

 : Only Tech Mode

4-2-2 Tech Mode Options

In TECH mode, press SETUP, then press ◀ or ▶ until 'TECH MODE' appears in the display. Press Start/Enter. The following technical options are available.

Note : If necessary, print System Data List in TECH mode. The list shows all current system data settings including the TECH MODE options. To print the system data list, press Report/Help, then press ◀ or ▶ until 'SYSTEM DATA' appears in the display, and press Start/Enter.

Modem Speed

- You can set the maximum modem speed.
- Communication is done with modem speed automatically set at lower speed when communicating with the modem with lower speed since communication is done on the standard of the side where modem speed is low for transmission/reception. It is better set 26.4KBPS as default setting.

DIALING MODE

- Select the dialing mode according to the user's line status.
- TONE: Electrical type of dial
- PULSE: Mechanical type of dial

SEND FAX LEVEL

- You can set the level of the transmission signal. Typically, the Tx level should be under -12 dBm. The level within the range of 1 to -15 dBm is acceptable.
- **Caution:** The Send Fax Level is set at the best condition in the shipment from factory. Never change settings arbitrarily.

RCV FAX LEVEL

- You can set the level of the receiving signal.
- The reception level may be too low due to the cable losses.
- If it is set to -43 dBm, the reception sensitivity will be between 0 and -43 dBm. If it is set to -48 dBm, the reception sensitivity will be between 0 and -48 dBm.
- **Caution:** The Send Fax Level is set at the best condition in the shipment from factory. Never change settings arbitrarily.

FLASH TIME

- Set the flash time to 80, 280, or 600 milliseconds.

PAUSE TIME

- Pause time mean delay time (unit: second) inserted between dial number signal and the next number of signal in the automatic dial (One touch, Speed dial, Redial) and the manual dial.
- **Caution:** The Send Fax Level is set at the best condition in the shipment from factory. Never change settings arbitrarily.

REDIAL INTERVAL

- If the remote machine is busy when the machine sends a fax using automatic dialing, the machine automatically redials the number. Select the time interval between automatic redial attempts. Enter the desired redial interval using the number keypad: 1 - 15 minutes.

REDIAL COUNT

- You can set times that redial automatically attempts when automatic transmission is done or when the remote machine is busy or when the machine send a fax. If there is no response after redialing by the times already set, redial is no longer attempted. No redial is attempted if the settings is 0. Enter the desired times from 1 through 5.

DP Make/Break

- Select the dial pulse make and break time: 40-60 or 33-67
- **Caution:** Send Fax Level is set at the best condition in the shipment from factory. Never change settings arbitrarily.

SILENCE TIME

- In ANS/FAX mode, after a call is picked up by the answering machine, the machine monitors the line.
- If a period of silence is detected on the line at any time, the call will be treated as a fax message and the machine begins receiving.
- Silence detection time is selectable between limited (about 12 seconds) and unlimited time.
- When '2 sec' is selected, the machine switches to receiving mode as soon as it detects a period of silence. When 'unlimited' is selected, the machine waits until the answering operation is concluded even though a period of silence is detected. After the answering operation is concluded, the machine switches to receiving mode.

ERROR RATE

- When the error rate is about to be over the setting value, the Baud rate automatically lowers up to 2400 bps to make the error rate remain below the setting value.
- You can select the rate between 5% and 10%.

IGNORE TONER EMP

- You can set this function ON if desiring to drive the engine continuously even though the life of toner is run out and it becomes Toner Empty status.

4-2-3 Maintenance Options

In TECH mode, press SETUP, then press ◀ or ▶ until 'MAINTENANCE' appears in the display. Press Start/Enter. The following technical options are available

CLEAN DRUM

- Use this feature to get rid of the toner remained in the development unit, so you can get a clean printout. Perform this feature if stains or specks appear on the printing materials and print quality falls.
- Perform this feature several times until a clean printing material appears.

ADJUST SHADING

- Use this feature to correct the white reference of the scanner if you experience bad copy images. When using this feature, a white paper should be used to get clean copy images.
- Use this adjustment feature to achieve best image (scan) quality depending on the characteristics of the CIS (Contact Image Sensor) parts.
 1. Select [ADJUST SHADING] from the Service Mode.
 2. Insert a clean white original [Letter Size] into the paper loading part.
 3. Original is scanned if pressing the Setting button.
 4. If the original scan is completed, message is displayed on the LCD window and CIS SHADING PROFILE is output.
- If the output image is different from the normal screen, the CIS is poor.

Caution:

1. Always perform the CIS TEST after downloading Firmware. Otherwise, the system may not operate properly.
2. Always perform ADJUST SHADING after replacing the CIS.
3. Always use a clean white paper in ADJUST SHADING (Maximum paper width: Letter Size).
4. ADJUST SHADING may be performed even in the User Mode but ADJUST SHADING profile is output only in the TECH MODE.

REMOTE TEST

- The Remote Test feature can be enabled in order to allow a remote location to call up and run a diagnostic test on your machine. You may be instructed by a service representative to enable this feature.

NOTIFY TONER LOW

- With this feature enabled, when the toner becomes low, the toner low information will be sent to a specified contact point, for example, the service company. After you access this menu, select ON, and when the LCD prompts, enter the name and the number of the contact point, the customer's fax number, the model name, and the serial number.

ROM TEST

- Use this feature to test the machine's ROM. The result and the software version appear in the LCD display.

CIS TEST

- This test checks the operation of the Contact Image Sensor (CIS). Each time the number changes by one increment, the average ADC value of CIS prints out.

DRAM TEST

- Use this feature to test the machine's DRAM. The result appears in the LCD display.

SWITCH TEST

Use this feature to test all keys on the operation control panel. The result is displayed on the LCD window each time you press a key.

MODEM TEST

- Use this feature to hear various transmission signals to the telephone line from the modem and to check the modem.
- If no transmission signal sound is heard, it means that the modem part of the main board is poor.

DTMF TEST

- DTMF (Dual Tone Multi Frequency) signal. When you press any key on the number keypad including • and #, you will hear the corresponding key tone.

TONER COUNT

- This feature shows the current state of the toner cartridge.
- TONER CNT: The total number of the dots used to print up to current time.
- CRU STATE: The page number which the toner cartridge can print.
- Caution : After replacing Main board to new one, you should update the information to the new board.

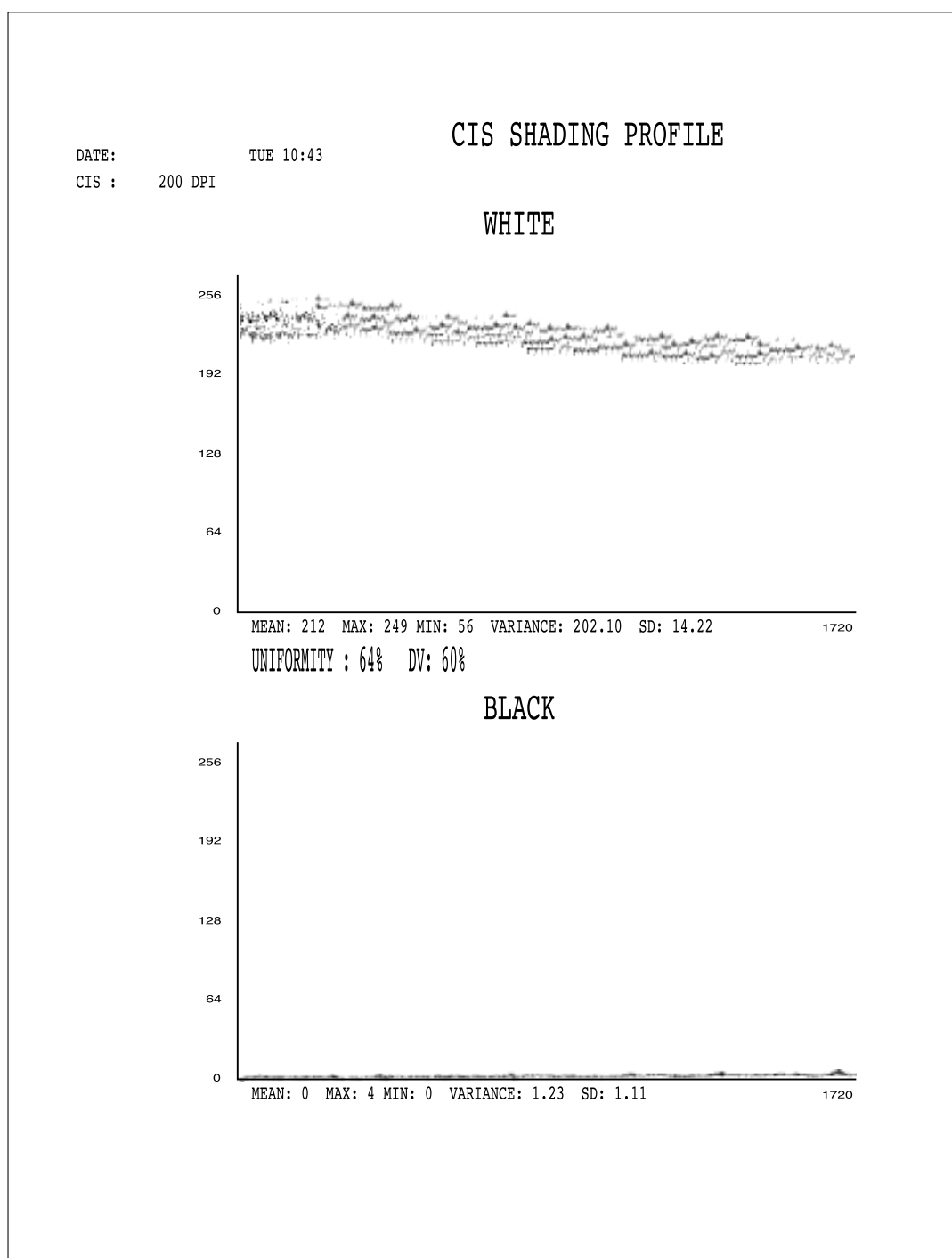
PRINTING INFO

- This feature allows the machine to automatically print various information, like toner count, transfer voltage, fusing temperature and so on, at the bottom of each printed page.
- PAGE TONER CNT: prints the number of dots used to print the page.
- TOTAL TONER CNT: prints the total number of the dots used to print up to current time.
- THV ON DUTY: prints ADC value of transfer voltage.
- THERMISTOR: prints ADC value of fusing temperature.
- P: prints the page number.

PROGRAM DOWNLOAD

- Use this feature to download a new upgraded ROM (See 4-2-7).

Adjust Shading Sample Pattern



4-2-4 Printout Report

In TECH mode, press Report/Help, then select the desired list or report by using ◀ or ▶ key, then press Start/Enter. The following options are available

HELP

- It shows a brief description on the machine's basic functions and commands. Use it as a quick reference guide

SENT JOURNAL

- This journal shows a specific information concerning transmission activities, the time and dates of up to 40 of the most recent transmissions.

RECEIVED JOURNAL

- This journal shows a specific information concerning reception activities, the time and dates of up to 40 of the most recent receptions.

PHONE BOOK

- It lists all telephone numbers that have been stored in the machine.

SENDING CONFIRM

- It shows the result of the last send operation.

SCHEDULE INFORM

- This list shows a specific information on the documents currently stored for delayed transmission. It provides the operation number, starting time, type of operation, etc.

SYSTEM DATA

- This list provides a list of the user system data settings and tech mode settings.

PROTOCOL LIST

- This list shows the sequence of the CCITT group 3 T.30 protocol during the most recent sending or receiving operation. Use this list to check for send and receive errors. If a communication error occurs while the machine is in TECH mode, the protocol list will print automatically.

PATTERN PRINT

- Using this pattern printout, you can check if the printer mechanism is functioning properly. Examine the pattern and look for a break in the diagonal line. If the diagonal lines are not broken, the printer mechanism is functioning properly.

SHADING PRINT

- With this print, you can check the scanning elements of the CIS (Contact Image Sensor).

4-2-5 Engine Test Mode

The Engine test mode is used to check the operation of the components related to the printer engine.

The following test are available.

To access the Engine Test Mode:

1. Press Setup, #, 1, 9, 3, 1 in sequence.
2. When 'ENGINE TEST?' appears, press Start/Enter.
3. Scroll the options by pressing ◀ or ▶ repeatedly find the one you want.
4. Press Start/Enter to start the test.
5. Press Stop to exit the Engine test mode.

• Caution :

When you finish operating in Engine Test Mode, you must turn the power Off/On.

• Engine Test Mode Options :

1. MAIN MOTOR TEST
2. PTL TEST
3. FAN TEST
4. FUSER TEST (FUSER ON : 145°C ↓ , FUSER OFF : 145°C ↑)
5. LSU MOTOR TEST
6. LD(LASER DIODE) TEST
7. HSYNC TEST (NG/OK)
8. LSU OPERATION TEST (NG/OK)
9. SENSOR TEST (FEED , EXIT ,COVER OPEN)
10. SOLENOID TEST
11. MHV TEST (-1550 V)
12. DEV TEST (- 430 V)
13. THV(+) TEST (+1300 V)
14. THV(-) TEST
15. THV TRIGGER TEST
16. ALL FUNCTION TEST :

This function is for a manufacturing press . You can test all function(1~15)

- When you push the "Start" button, the Main Motor runs.
- If you push the "Start" button again , the current test stops, and the next test starts.

4-2-6 Memory Clear

The function resets the system as its very first condition as setting in at the factory. This function is needed to operate to reset the system to the initial value when the product is abnormally operated or malfunction. All the values are returned to the default values, and all the information, which set in by user, will be erased.

4-2-6-1 Method to use TECH MODE

- Perform the MEMORY CLEAR at the TECH MODE.

4-2-6-2 Method to use STOP BUTTON

1. Turn off the power.
2. Keep pushing the STOP button till the MEMORY CLEAR-ING is shown up at the LCD panel.
3. Turn on the power.
4. Select your country.
5. Push the Enter button then it will be all memory clear.

4-2-7 Firmware Upgrade

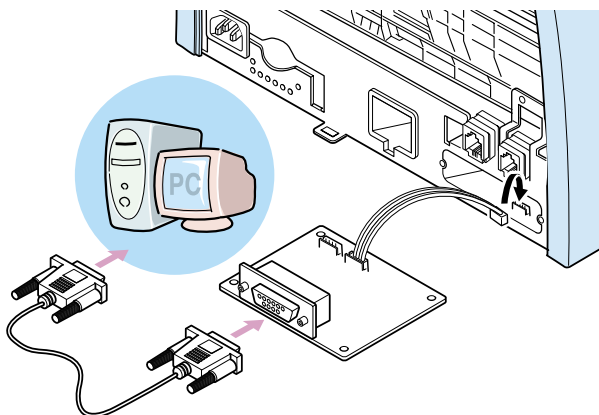
The most of Samsung's model is adopted a method which download the firmware from PC by connecting a PC to a machine in parallel with parallel cable. But the SF-515 model has two different upgrading ways because of no existing parallel port.

4-2-7-1 Local Upgrade

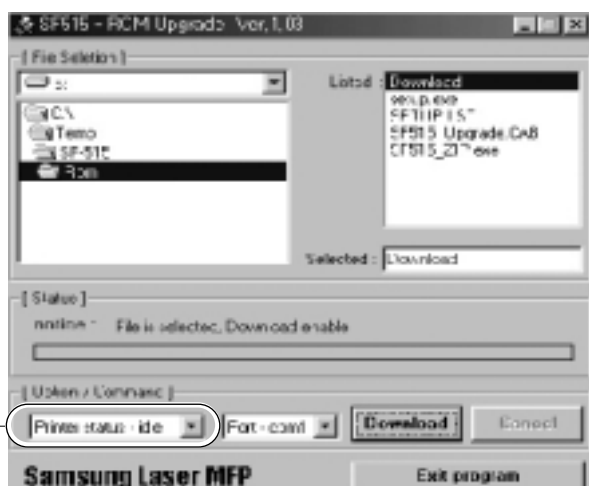
Connect a PC to a machine with a Serial cable to download a firmware from PC.

A special firmware upgrading program and a Serial Board for serial cable are needed.

- 1) Remove 2 screws to separate the Rear Cover, and connect the Serial board to the connector (4pins) of the Main Board.
- 2) Connect the PC (COM1 or COM2) to the Serial Board with Serial Cable.



- 3) Turn the Power on and operate the firmware-upgrade program.
- 4) Find the file needs to upgrade in the below screen, and double click it.



* Printer Status-idle : Use it when the machine is in general condition.

* Printer Status-sleep : Use it when the machine is preparing to upgrade the firmware. (Tech Mode→Maintenance→Program Download→Local Upgrade)

- 5) Press the Download button for automatically downloading the firmware in the PC.

4-2-7-2 Remote Upgrade

This is a function that a fax with the latest firmware sends files to a fax in long distance through telephone line.

- 1) Method to utilize SF-515

This method connects the SF-515 model to the same model with telephone line to send the firmware. It is possible to operate the Multi Remote Upgrade by storing several telephone numbers at the sending part.

- a) Make the sending machine to be preparing firmware upgrade. (Tech Mode→Maintenance→Program Download→Remode Upgrade)
- b) "TEL:" will be displayed at LCD window.
- c) Enter the telephone number of receiving machine and press 'Enter' button.
- d) "ENTER ANOTHER NO" will be displayed at LCD window. If you wish to send to more than two places, press 'Enter' button and enter the other telephone numbers.
- e) Additionally, name and transmitting time of receiving part will be displayed. Transmission will be started after confirm the message.

- 2) Method to utilize SCX-5312F

This method connects the SCX-5312F model with telephone line to send the firmware.

- a) The first of all, need the files : **down515.bat**, **down515.bin**, and **Rom File**(file name for upgrade). Save the files in the same folder.
- b) Connect to PC with Parallel cable
- c) In the DOS, input as below.
down515 "rom file"
- d) Enter the telephone number of receiving machine and press 'Enter' button.

4-3 Diagnostics

This section describes methods and procedures to isolate the cause of a malfunction in the machine. This machine displays diagnostic information on the LCD. In addition, it can perform a series of tests that allow the machine to observe individual machine functions.

4-3-1 Error Messages

Error Message	Description	Solution
DOCUMENT JAM	The loaded document has jammed in the feeder.	Clear the document jam.
DOOR OPEN	The top cover is not securely latched.	Press down on the cover until it clicks in place.
FUSER ERROR	There occurs a problem in the fuser unit.	Unplug the power code and plug it back in. If the problem still persists, please call for service.
JAM/NO CARTRIDGE	Recording paper has jammed inside the unit, or the toner cartridge is not installed.	Clear the jam, or install the cartridge
LINE ERROR	Your unit cannot connect with the remote machine, or has lost contact because of a problem on the phone line.	Try again. If failure persists, wait an hour or so for the line to clear, then try again. Or, turn the ECM mode on.
LOAD DOCUMENT	You have attempted to set up a sending operation with no document loaded.	Load a document and try again.
LSU ERROR	There occurs a problem in the LSU (Laser Scanning Unit).	Unplug the power code and plug it back in. If the problem still persists, please call for service.
MEMORY FULL	The memory is full.	Either delete unnecessary documents, or retransmit after more memory becomes available, or split the transmission into more than one operation.
NO ANSWER	The remote machine has not answered after all the redial attempts.	Try again. Make sure the remote machine is operational.
NO. NOT ASSIGNED	The one-touch or speed dial location you tried to use has no number assigned to it.	Dial the number manually with the keypad, or assign a number.

Error Message	Description	Solution
OVER HEAT	The printer part in your unit has overheated.	Please wait until it cools down. If you cannot solve the problem, please call for service.
CHECK PAPER PRESS START	Recording paper has jammed in the paper feeding area or no paper.	When paper is loading, clear paper jam and press jam and press start key. If paper is empty, press the start key after loading paper.
PAPER JAM 2	Jammed paper still remains inside the unit.	Clear the jam, or install the cartridge
POLLING ERROR	The remote fax machine you want to poll is not ready to respond to your poll. Or When setting up to poll another fax machine, you have used an incorrect poll code.	The remote operator should know in advance that you are polling and have their fax unit loaded with the original document. Enter the correct poll code.
POWER FAILURE	A power failure has occurred.	If documents have been stored in the memory, a 'Power Failure Report' will be printed automatically when the power is restored.
RECEIVE ERROR	A fax has not been received successfully.	A problem with the facsimile communications has occurred. Ask the sender to try again.
RETRY REDIAL ?	The machine is waiting for a specified time interval to redial a previously busy station.	You can press Start to immediately redial, or Stop to cancel the redial operation.
SEND ERROR	Your fax has not gone through successfully.	A problem with the facsimile communications has occurred. Try again.
TONER EMPTY	The toner cartridge has run out. The machine stops.	Replace with a new toner cartridge.
TONER LOW	The toner is almost empty.	Take out the toner cartridge and gently shake it. Using this way, you can temporarily re-establish the print quality.
WARMING UP	The printer is warming up and is off-line.	Wait until the printer is on-line.

4-4 Print Quality

No	Roller	Abnormal image period	Kind of abnormal image
1	OPC Drum	75.4mm	•White spot on black image •Black spot
2	Charge Roller	37.7mm	Black spot
3	Supply Roller	26.8mm	Horizontal density band
4	Develop Roller	31.6mm	Horizontal density band
5	Transfer Roller	47.1mm	Black side contamination/transfer fault
6	Heat Roller	50.1mm	Black spot, White spot
7	Pressure Roller	50.2mm	Black side contamination

4-5 A Note for Replacing Main Board

When replacing a main board, all information stored by user will be erased as an initial condition from factory. Please, keep the followed information when you replace a main board.

4.6.1 Enter an Information of Reminding Toner Amount

The information of reminding toner amount must be entered because the information will be erased when replacing a main board. If the information of reminding toner amount is not entered to a main board, it is possible not to show up the 'iTONER LOW/TONER EMPTY' message even though a toner is empty.

4.6.2 Memory All Clear

The machine is exported to all countries of the world, so it has only one kind of main board for joint use. After replacing a main board, the 'Memory Clear' must be operated to choose a specific country because the stored content is different by each country. The 'Memory Clear' has to be operated by using 'Stop' button. (In the condition of being power off, power on while press the stop button.)

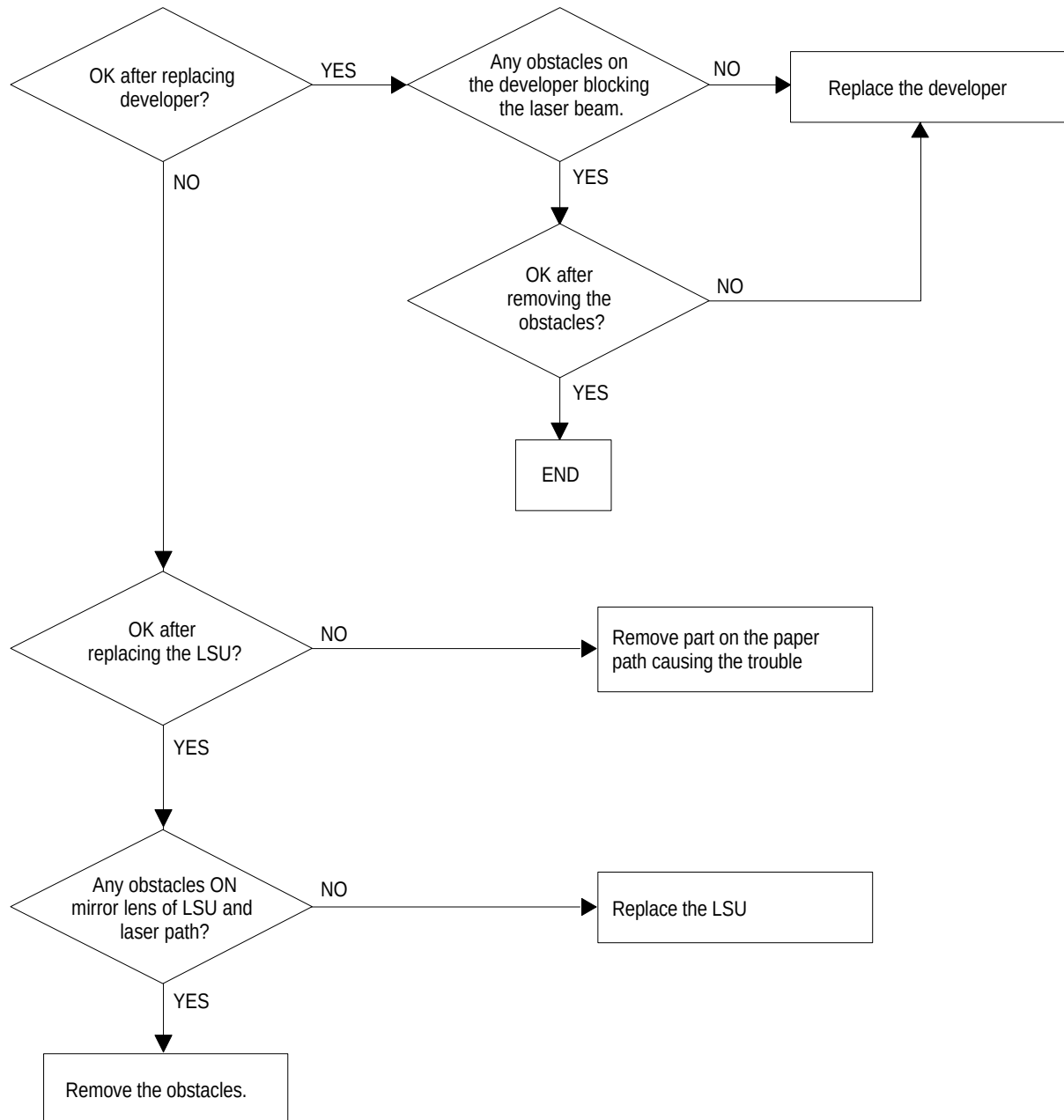
4.6.3 A Tip for Replacing a Main Board

1. Print the System Data List at Tech Mode
 - In the System Data List, the stored various information of the machine can be found.
2. Turn the power off and replace a main board.
3. Turn the power on while pressing the Stop button.
4. Choose a country (Korea)
 - use “◀ ▶” button to choose it.
5. Press 'Enter' button to operate 'Memory Clear'
6. Select the Tech Mode (Choose 'Setup', then press 1,9,3,4 button in order.)
7. Select Maintenance then Toner Count.
8. Enter the Total Toner Count values of last main board by using figure buttons, and press the Enter key.
9. Select a toner cartridge type of the current machine.
 - A toner cartridge supplied when buying a machine: 1,000
 - A toner cartridge bought by user: 2,500
10. Confirm the entering value by printing the System Data List at Tech Mode.
11. Operate the Adjust Shading.

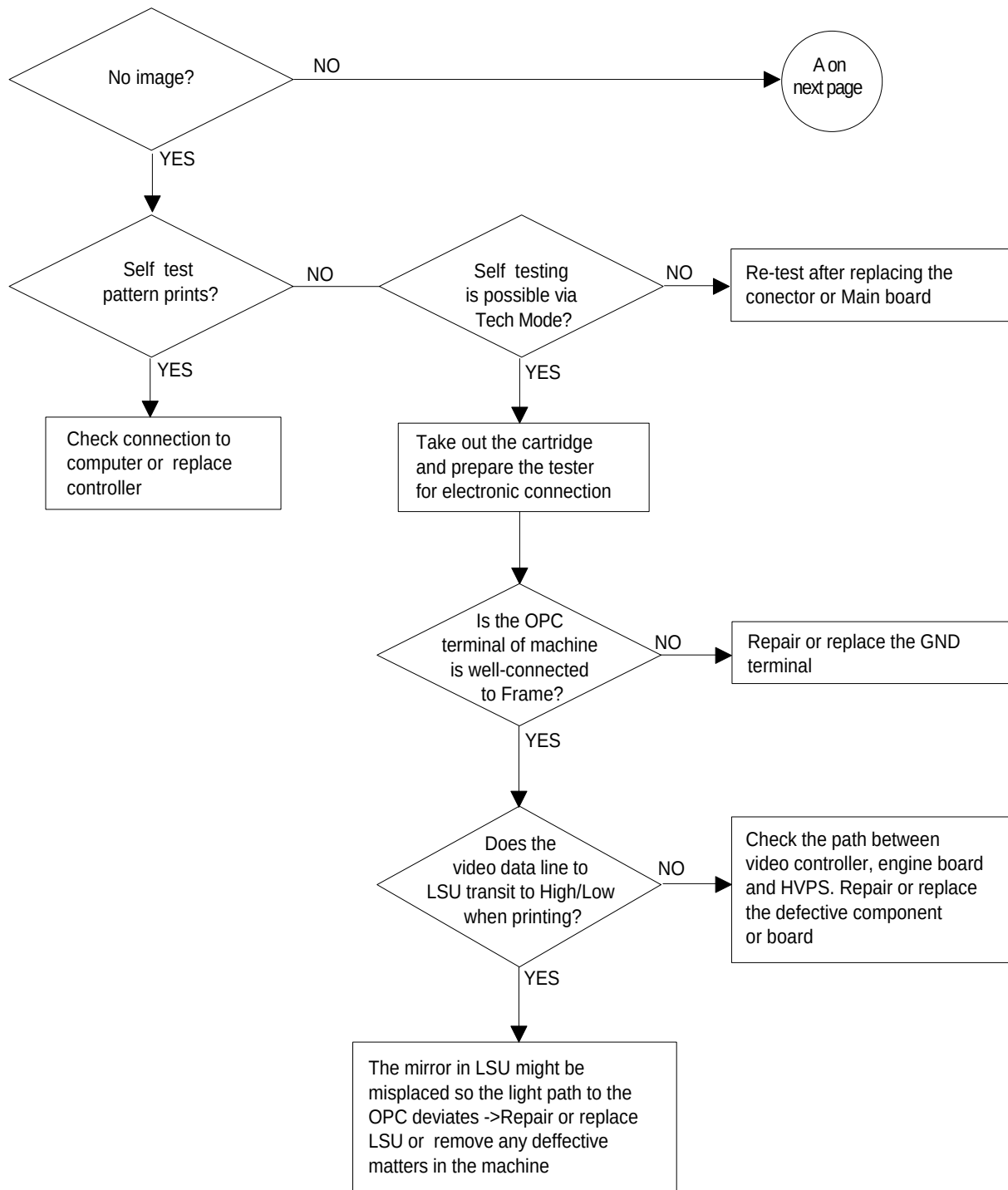
(Referred to the page 4-4 for method of adjust shading)

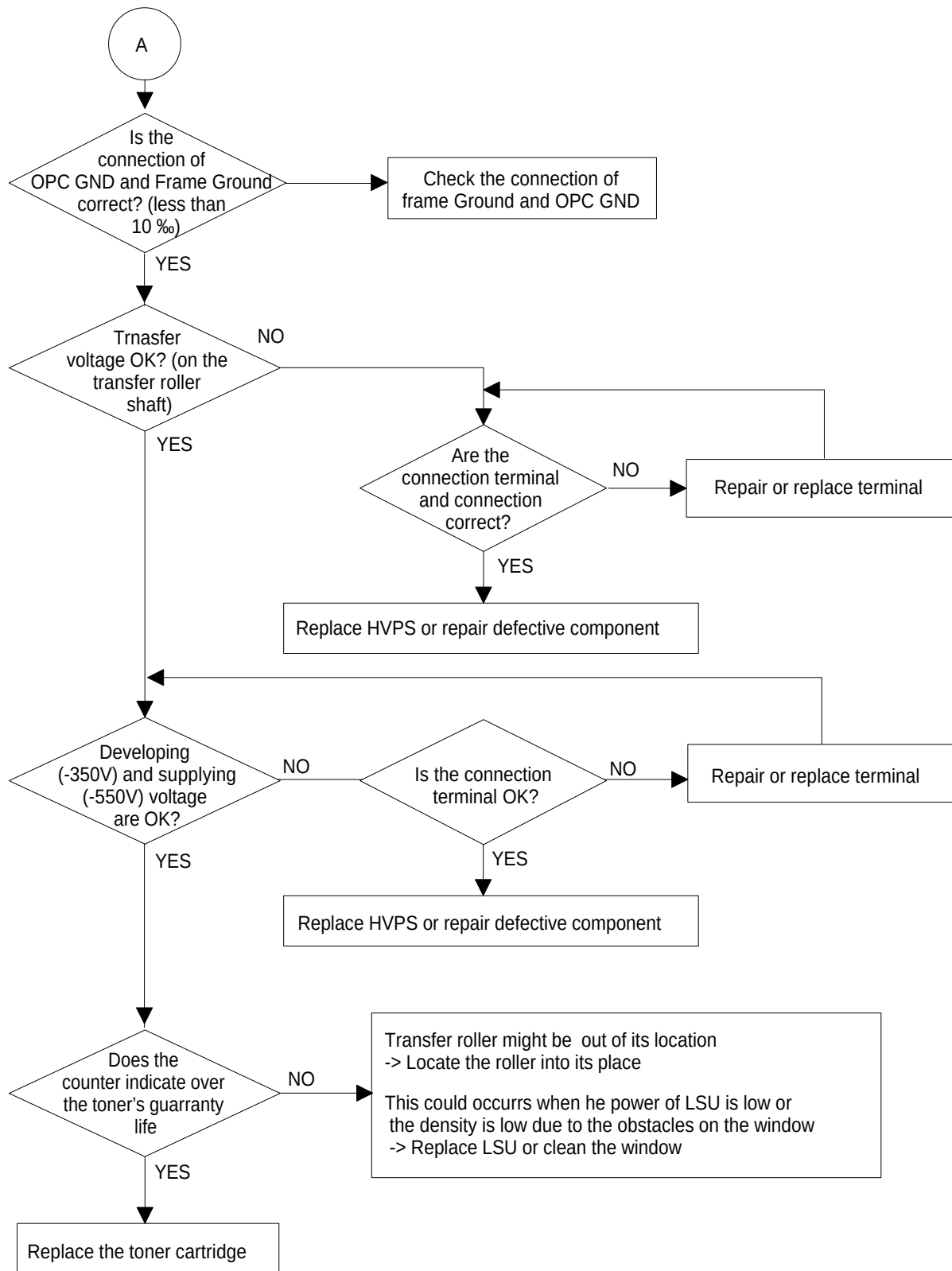
4-6 Troubleshooting Flow Chart

Vertical black line and band

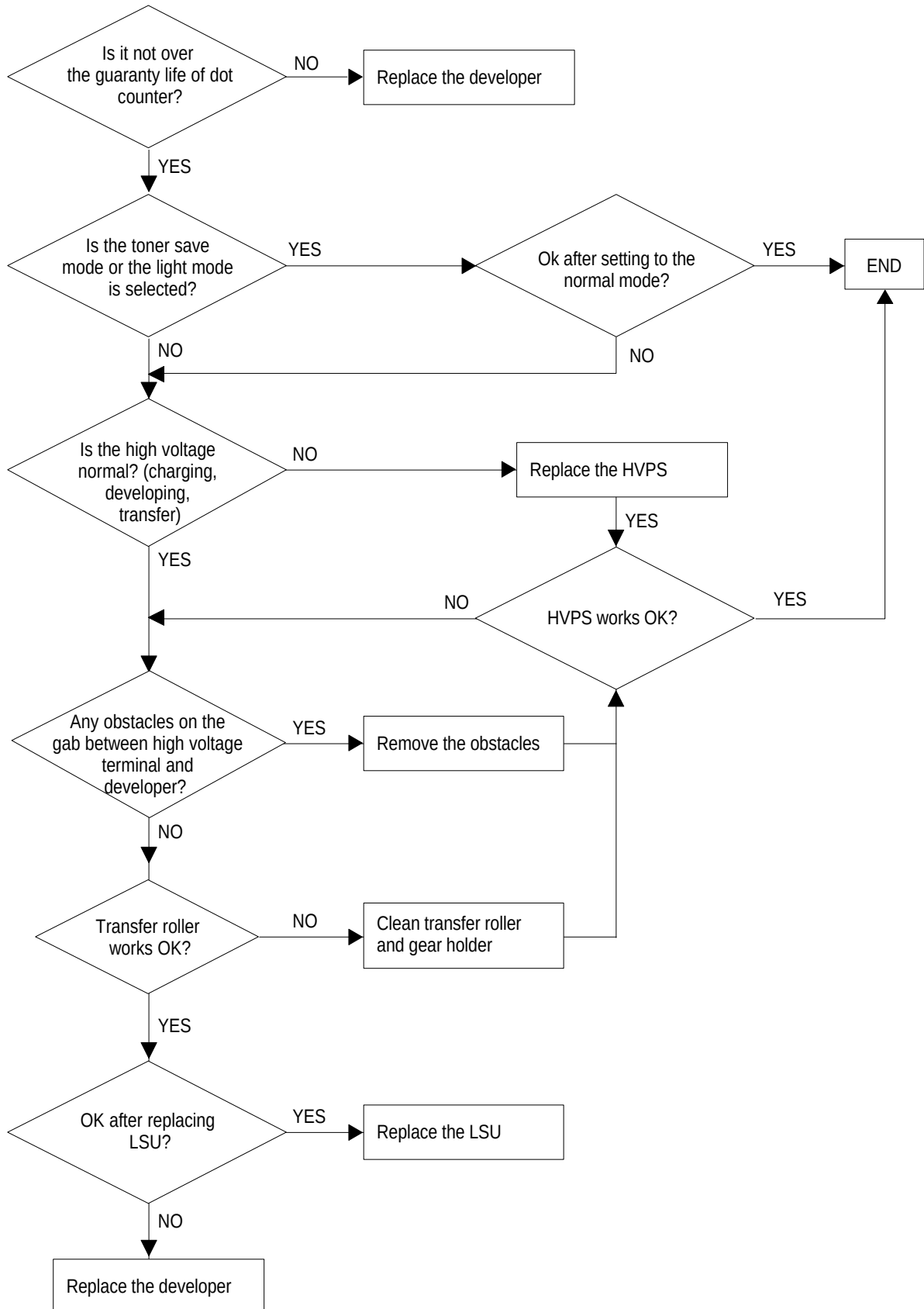


No Image

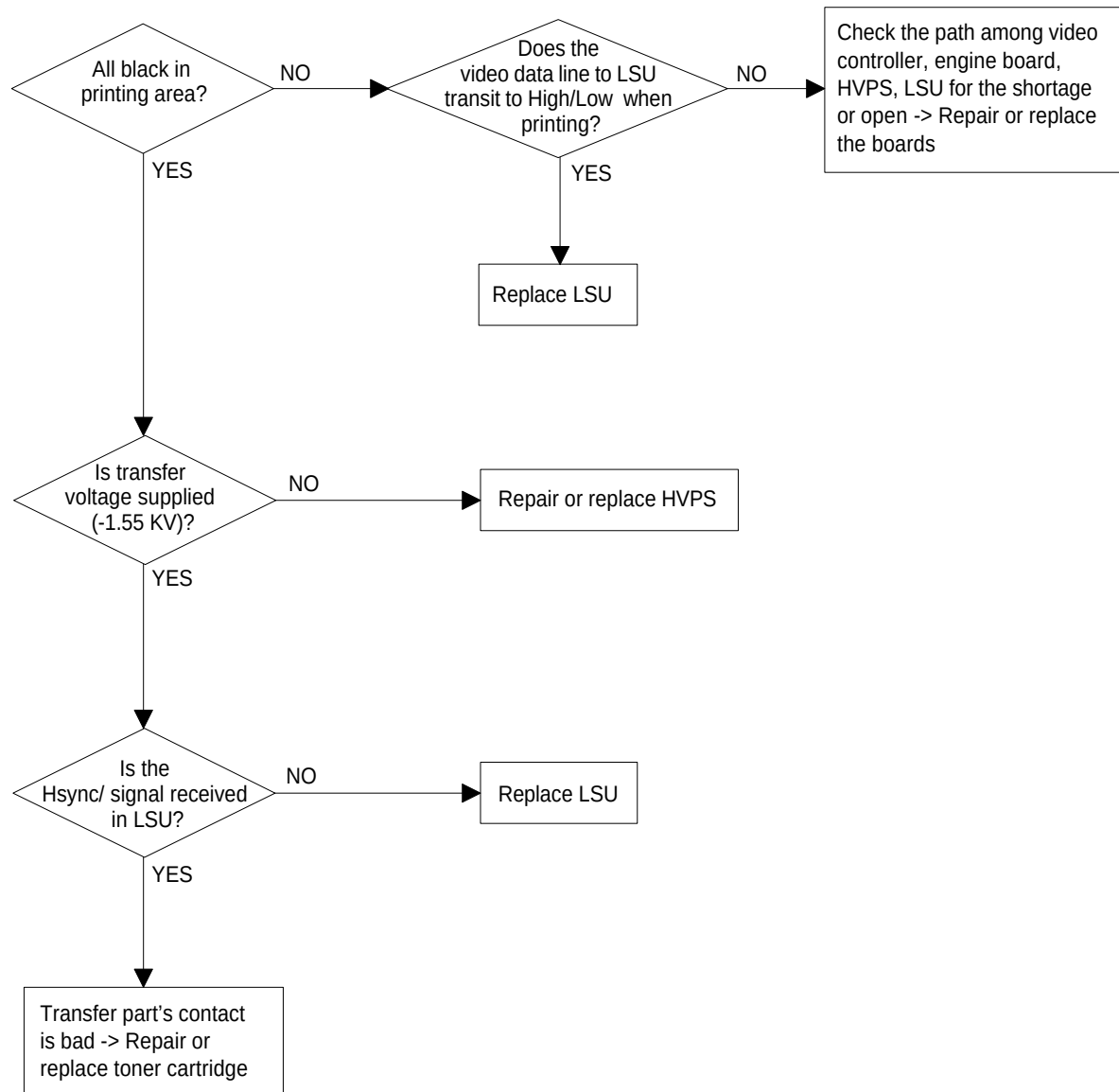




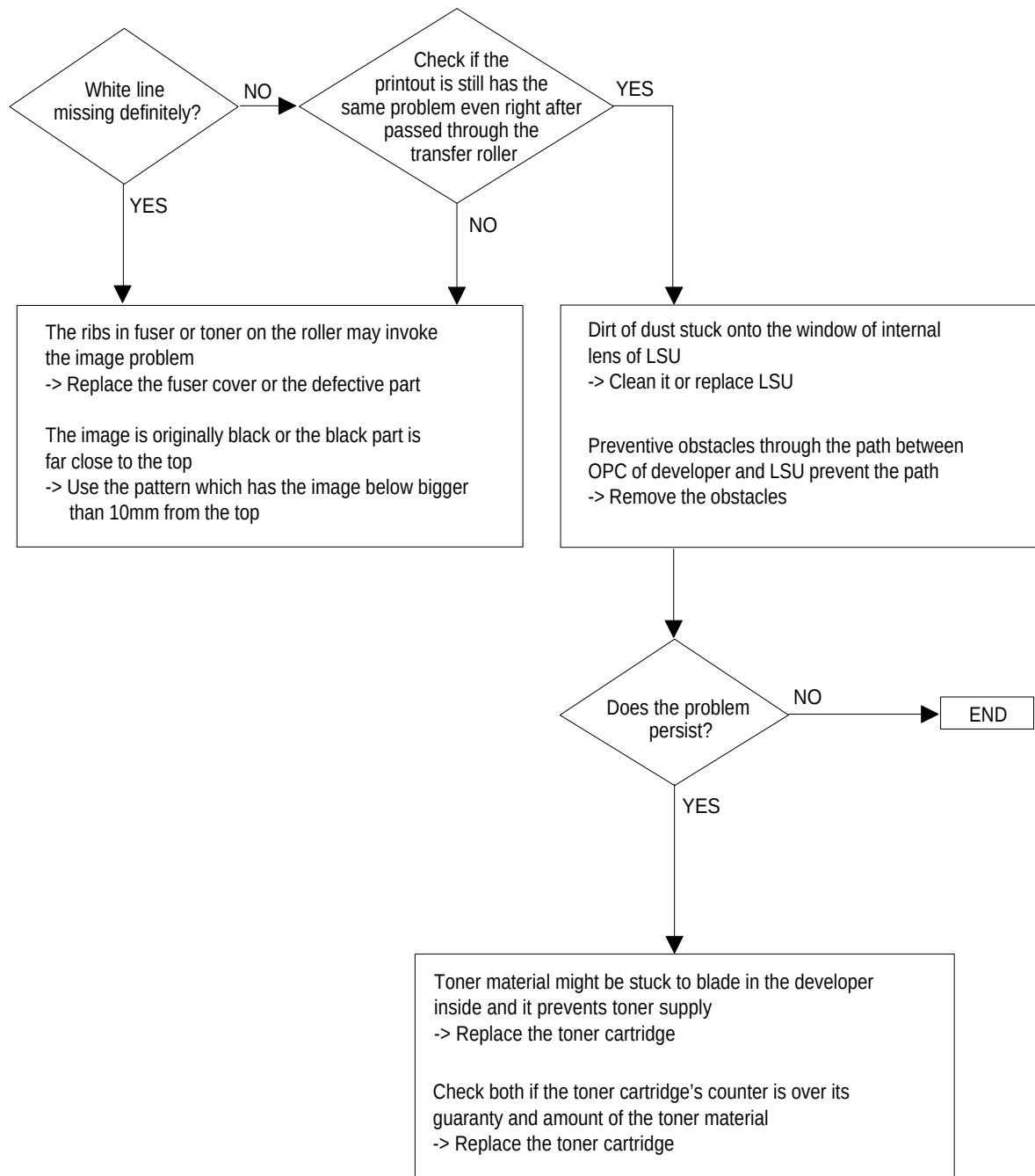
Light image



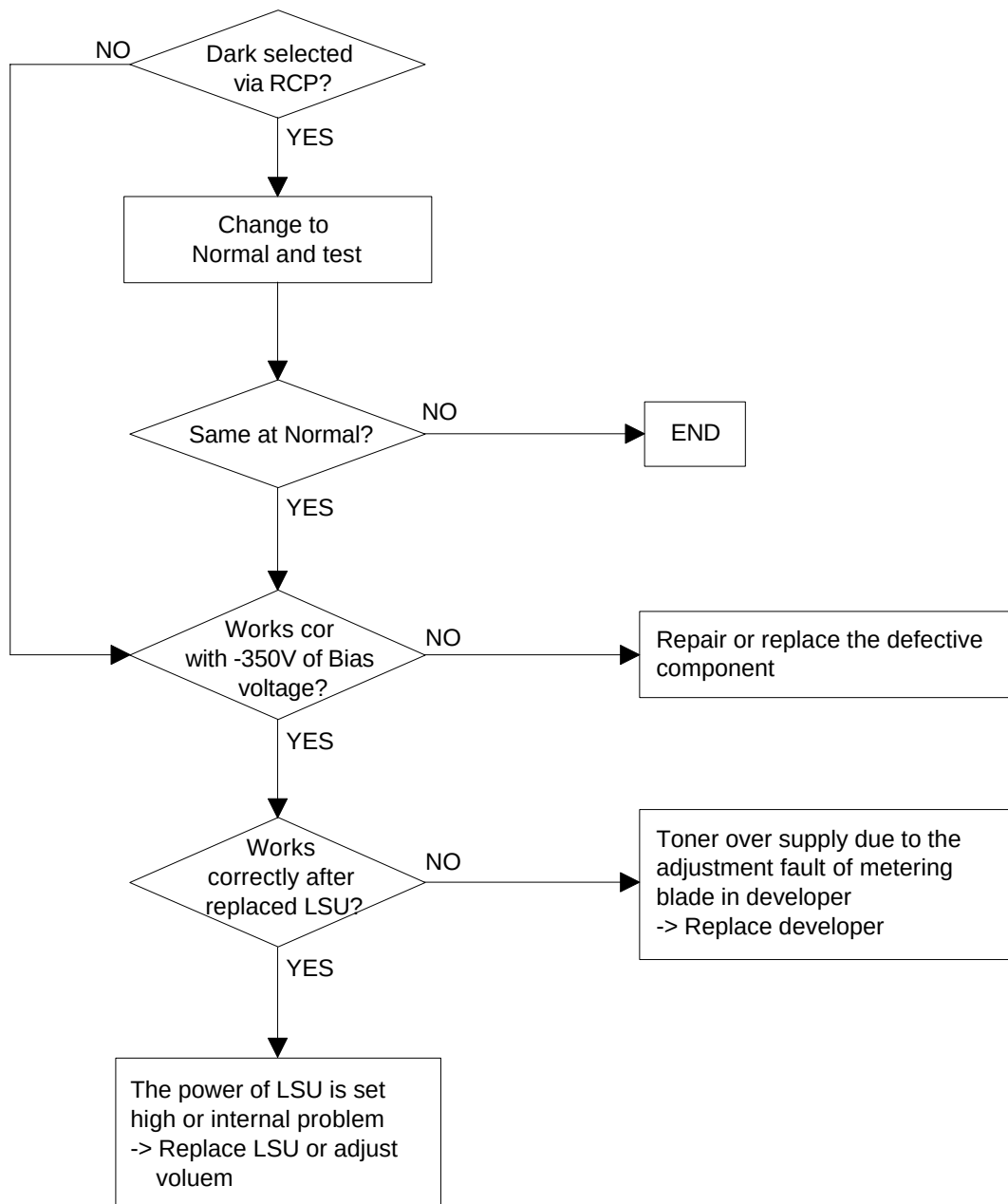
All Black



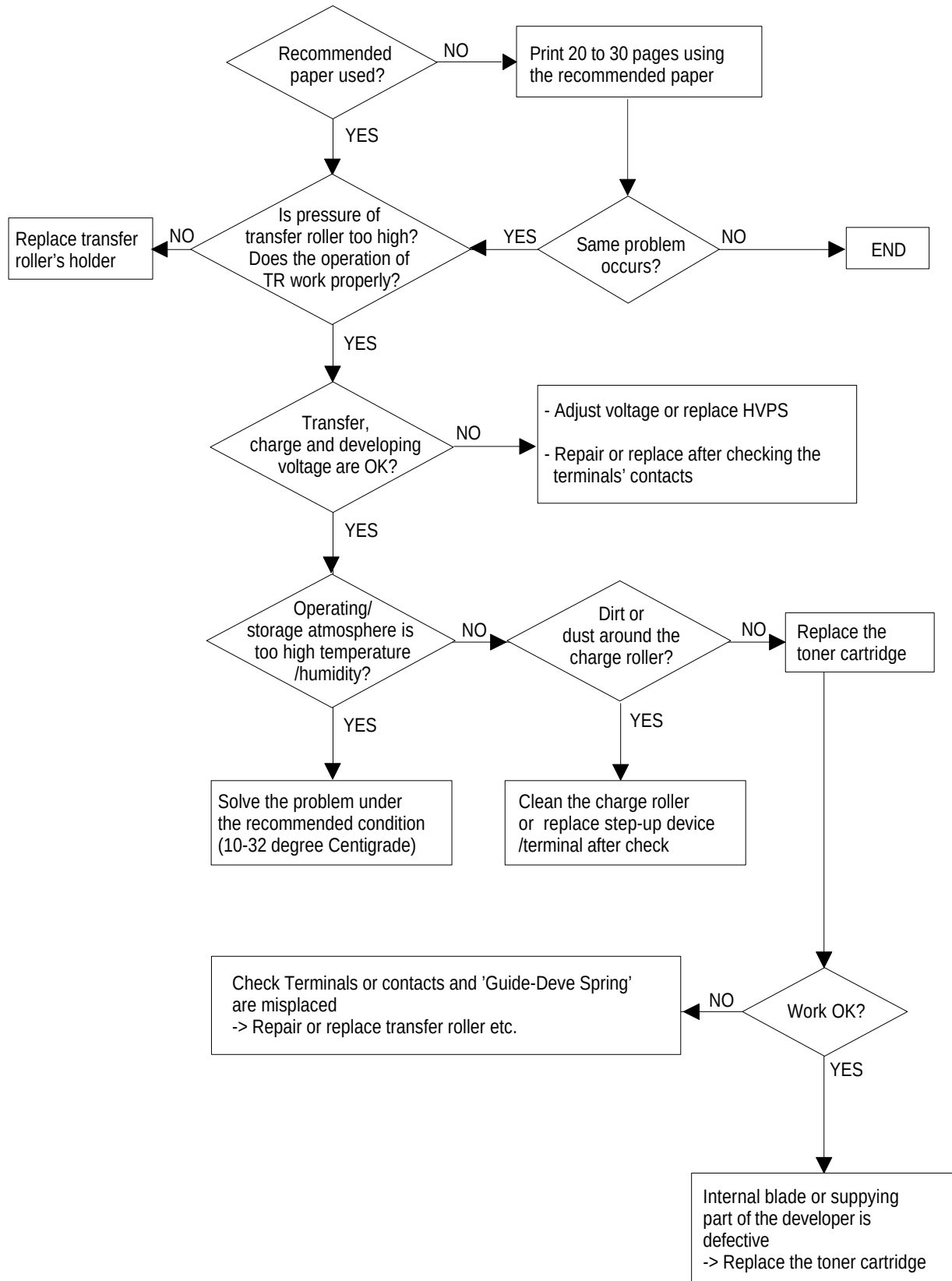
Vertical White Line (Band)



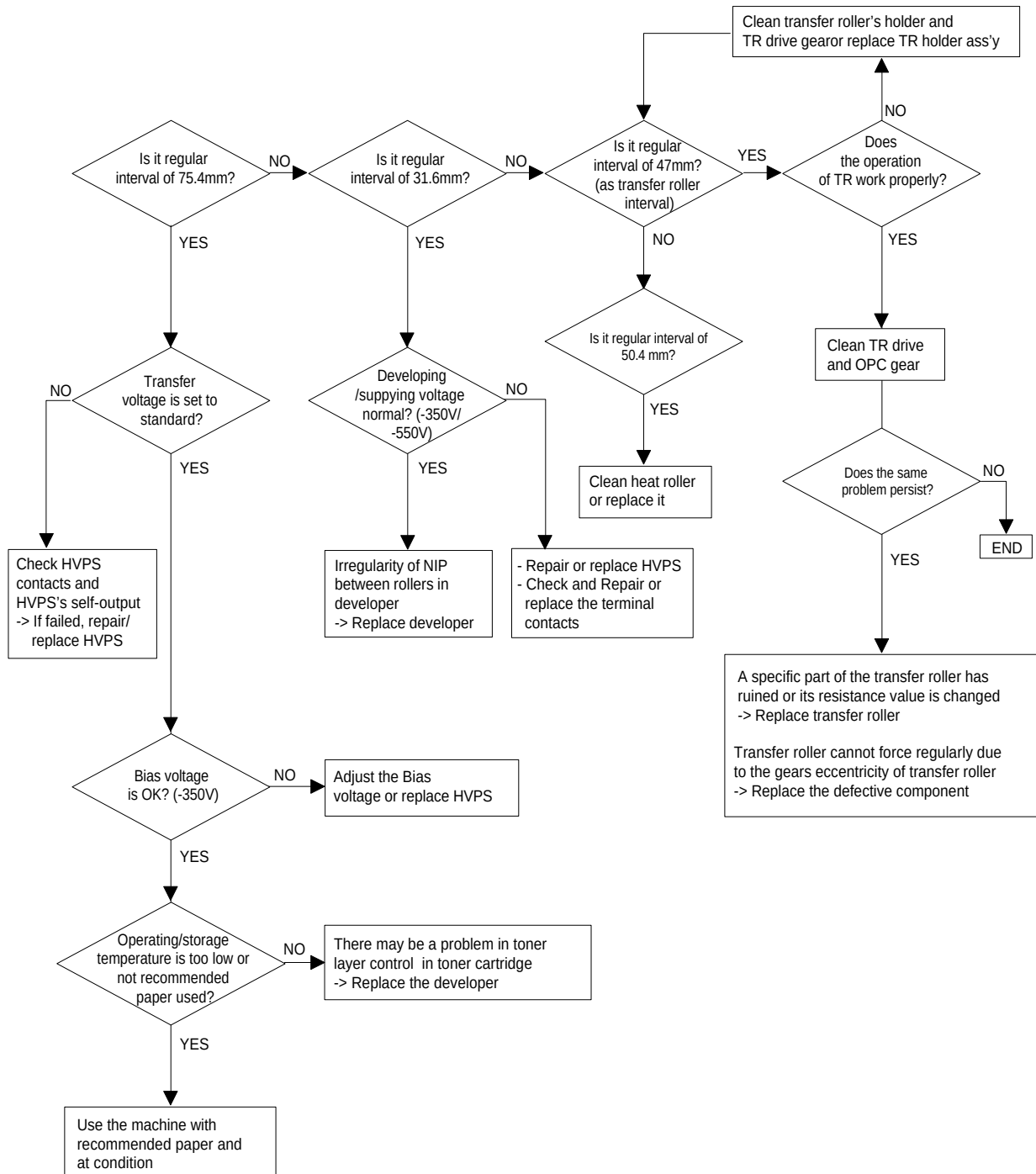
Dark Image



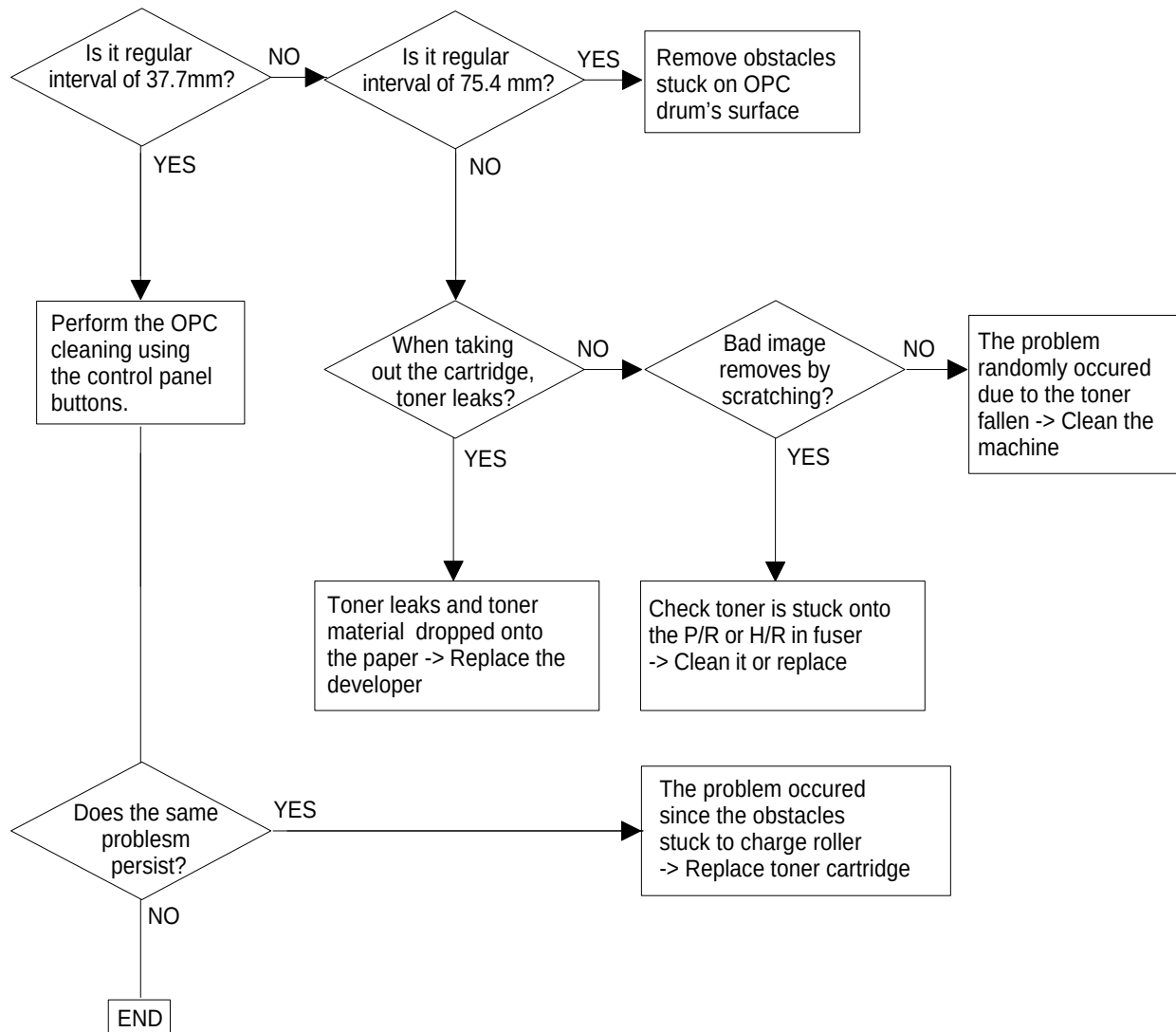
Background



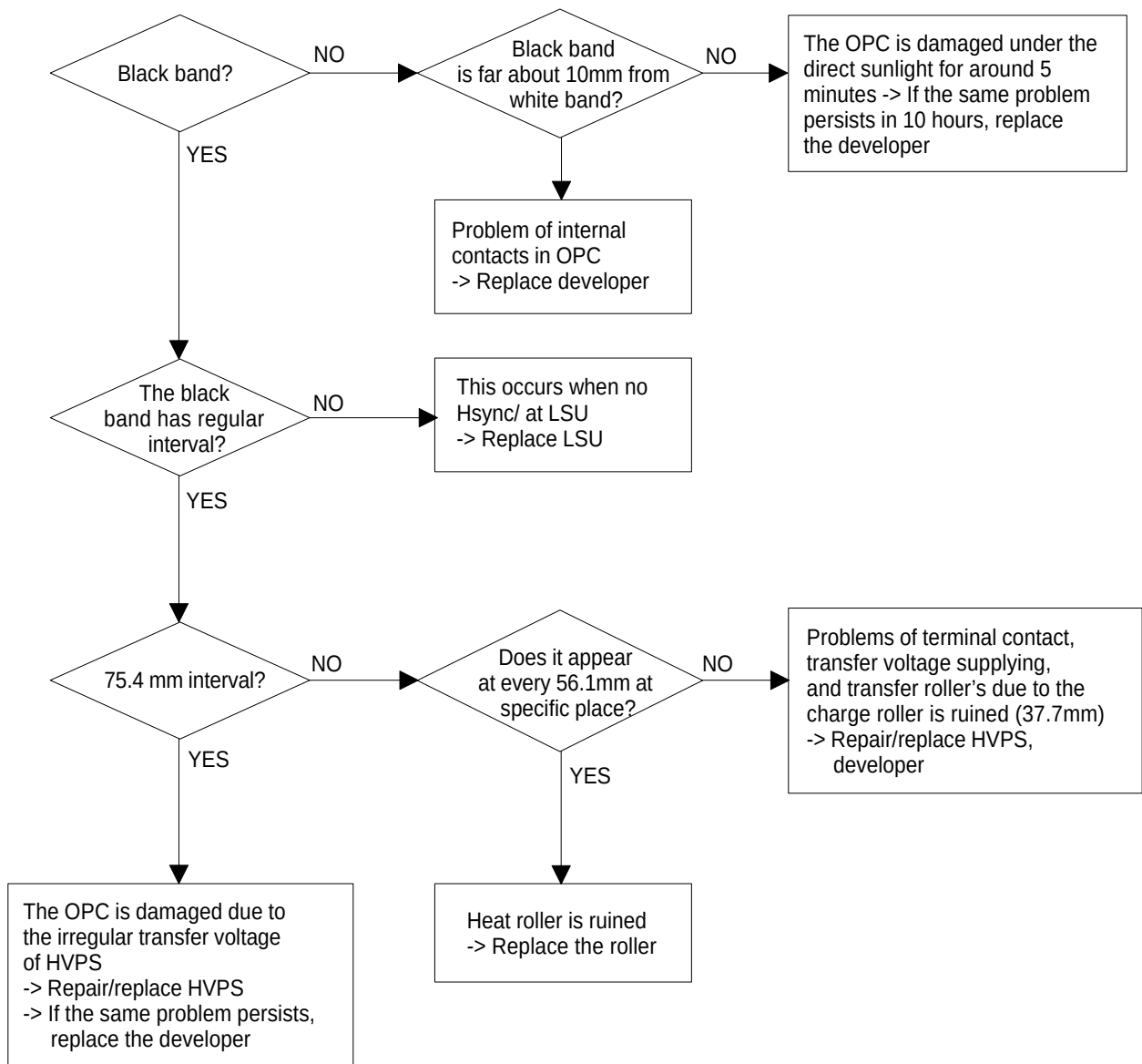
Ghost



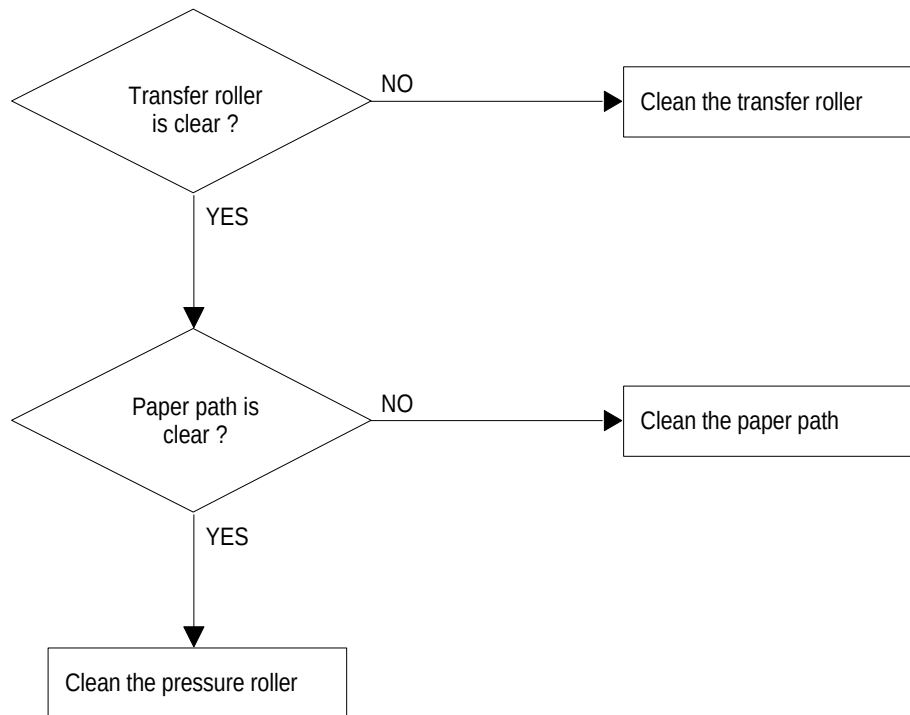
Black Spot



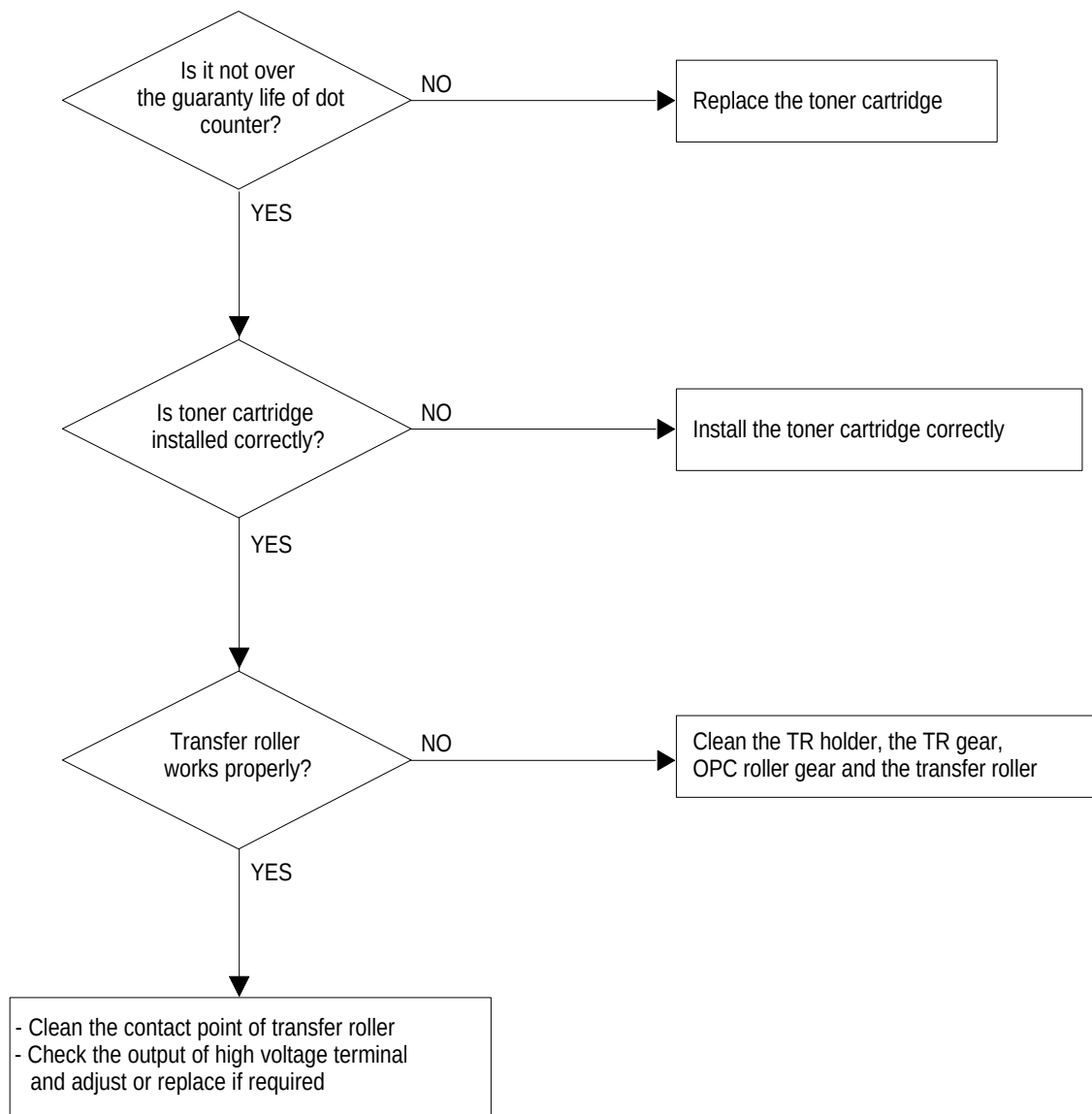
Horizontal Band



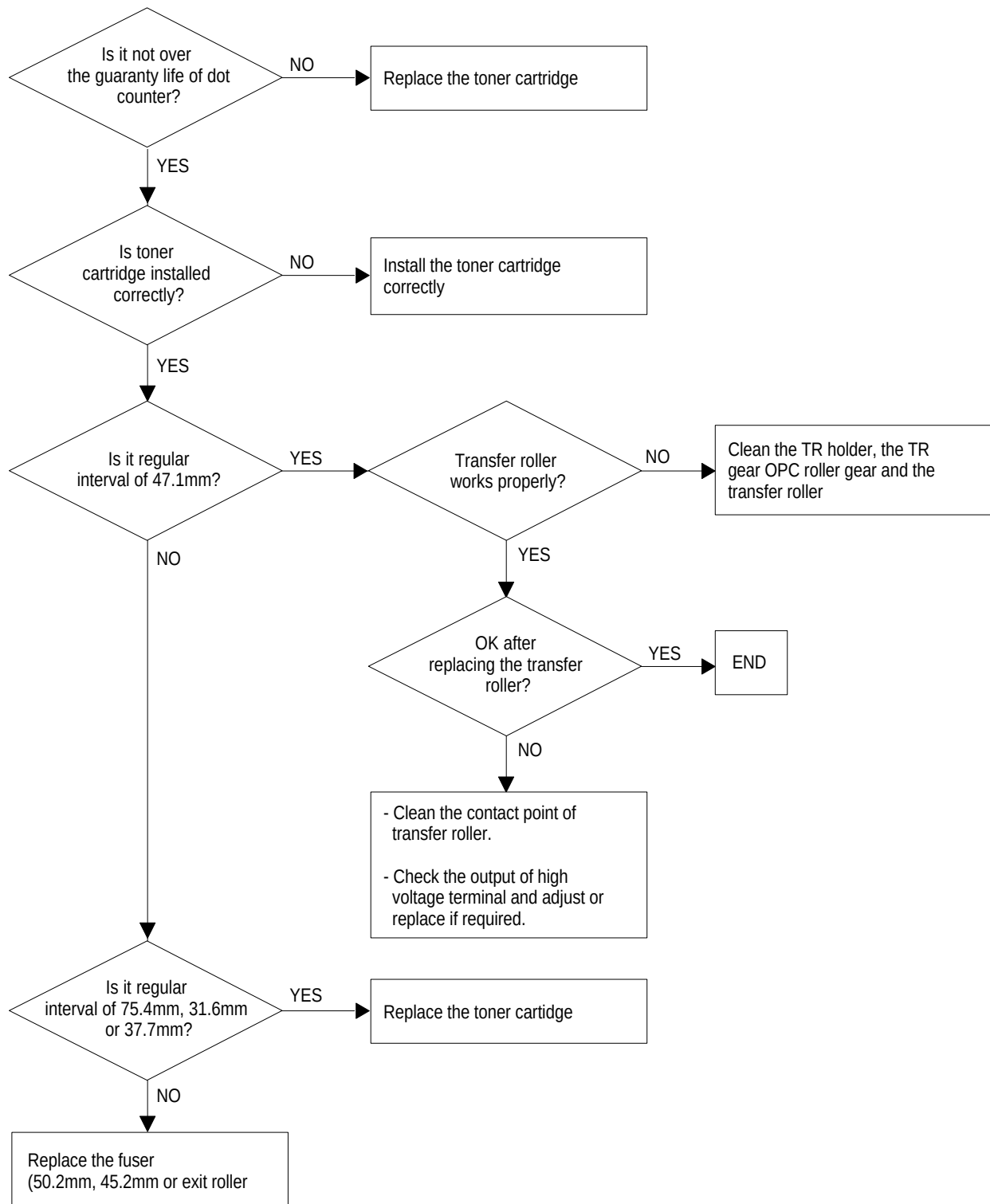
Toner Contaminations on Back of Paper



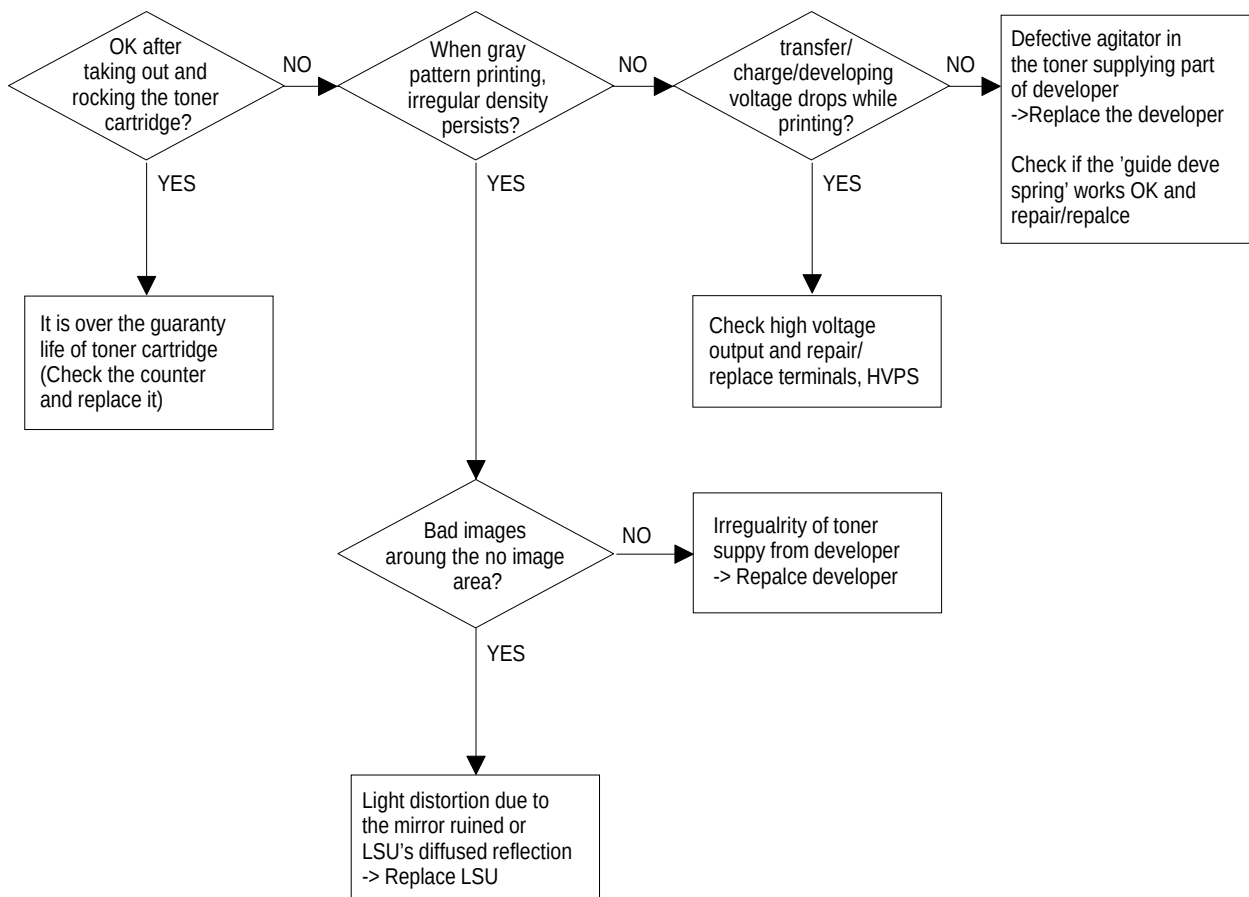
Partial Blank Image (not Periodic)



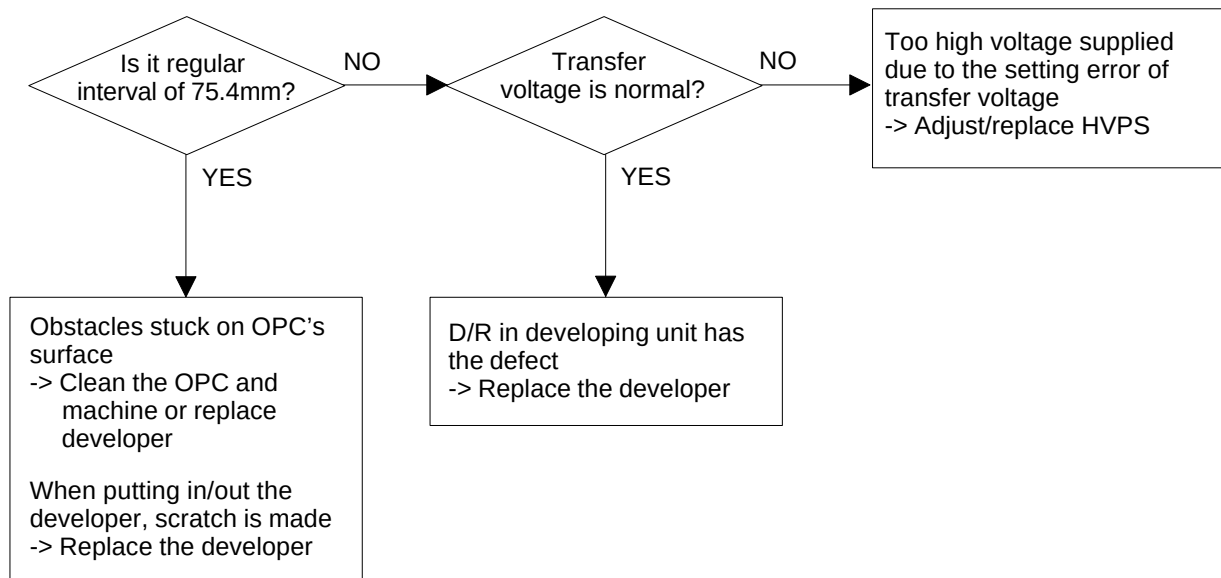
Partial Blank Image (Periodic)



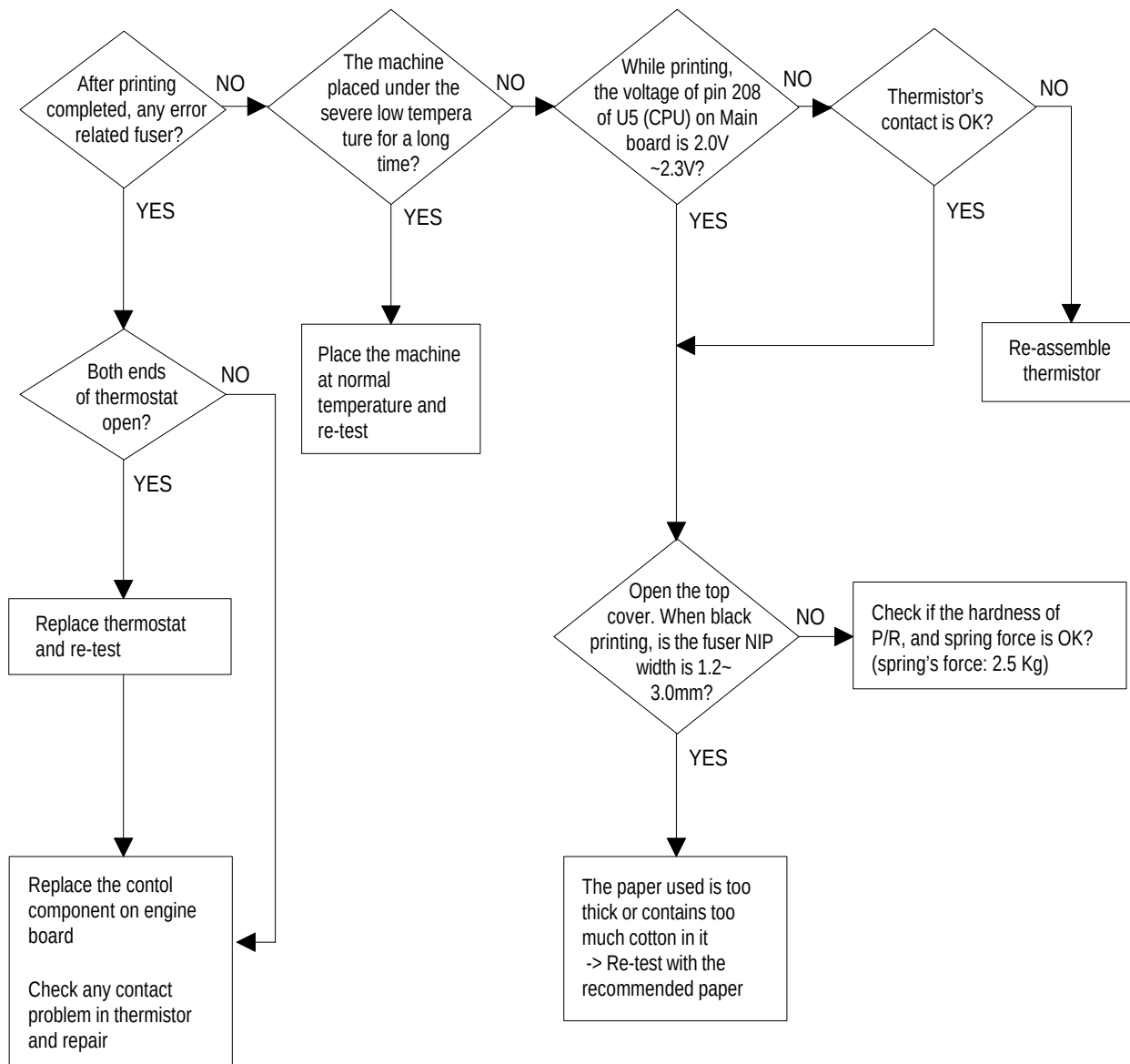
Irregular Density



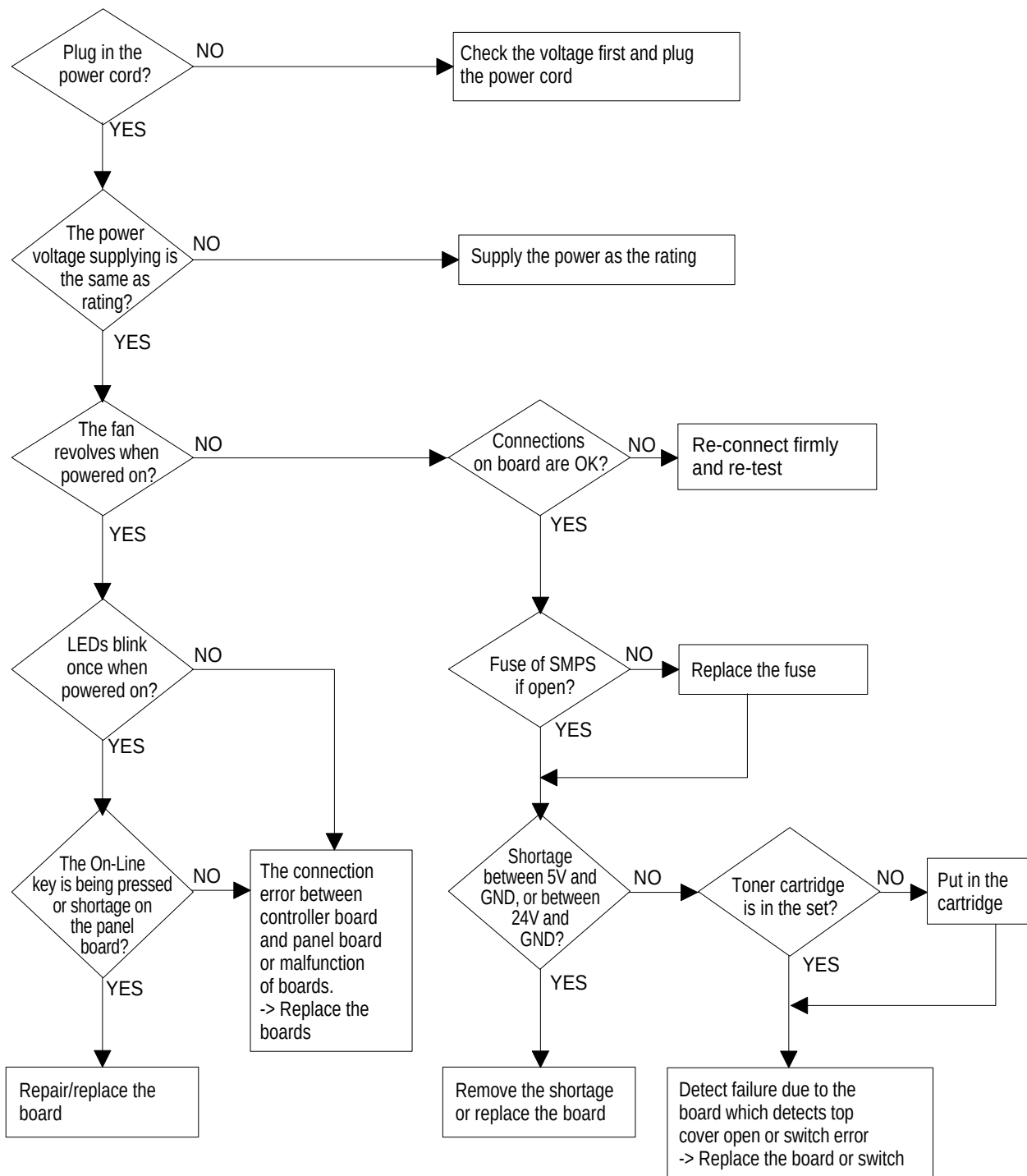
White Spot



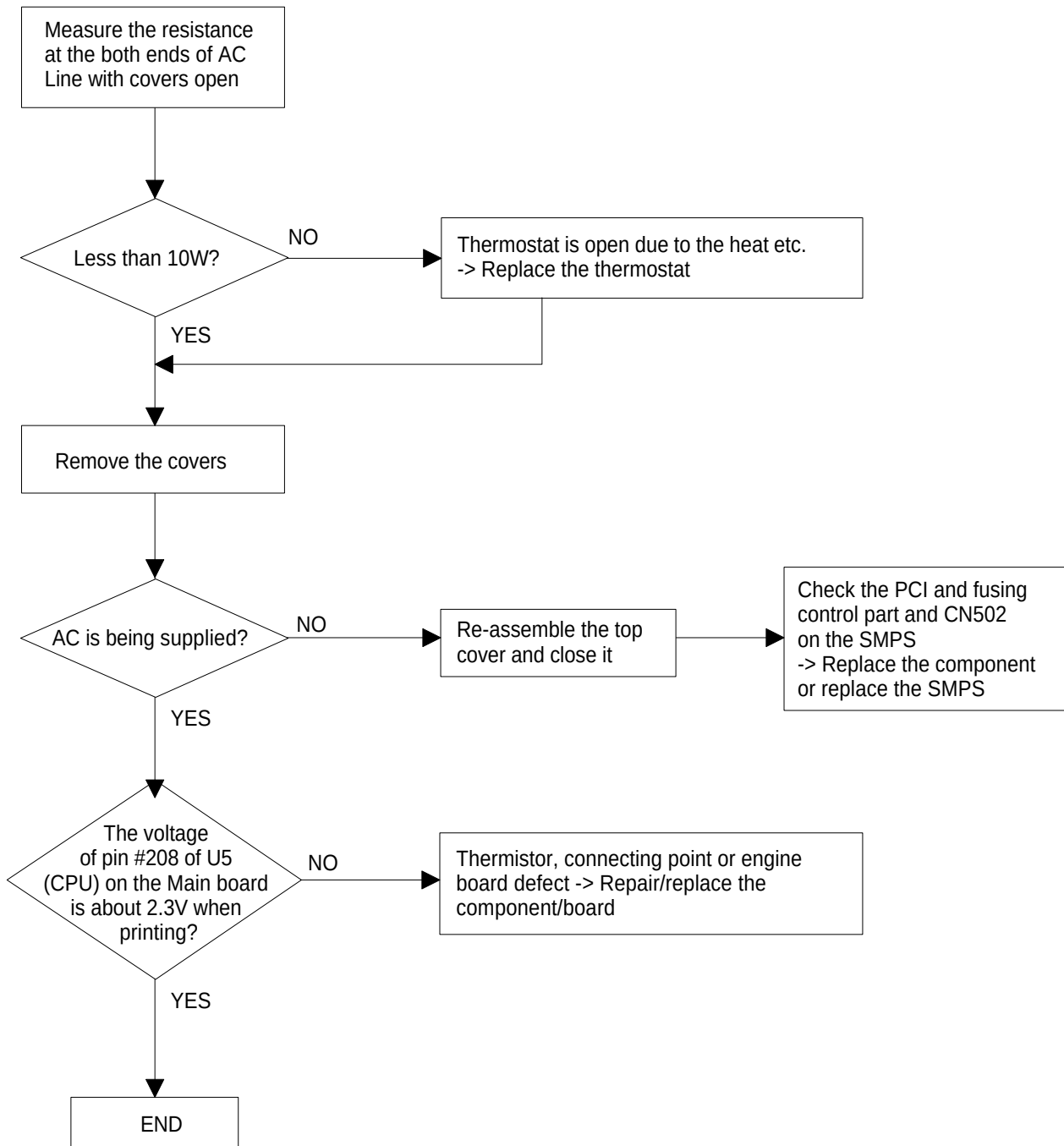
Poor Fusing Grade



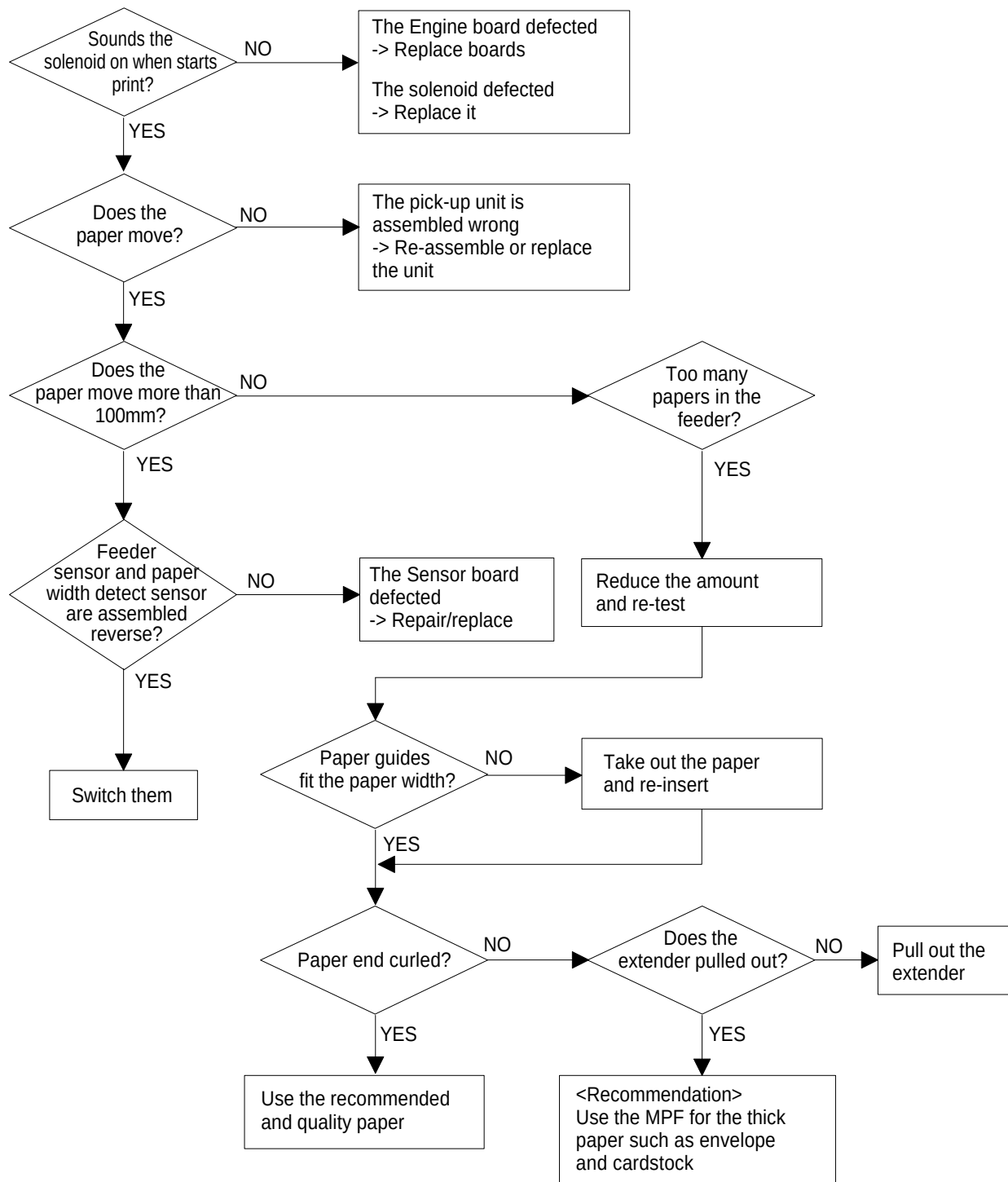
No Power (LCD NO display LED Off)



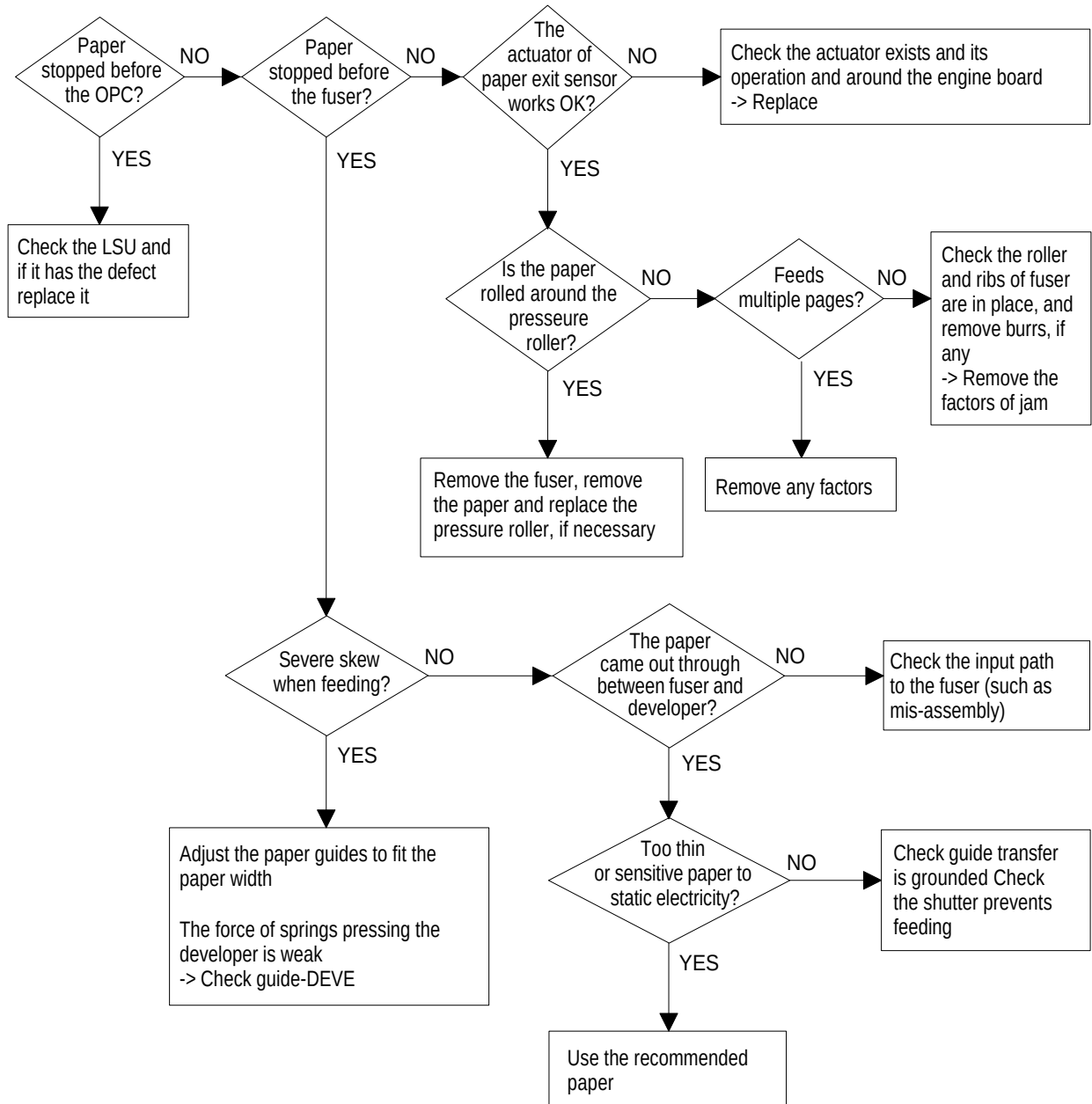
Fuser Error



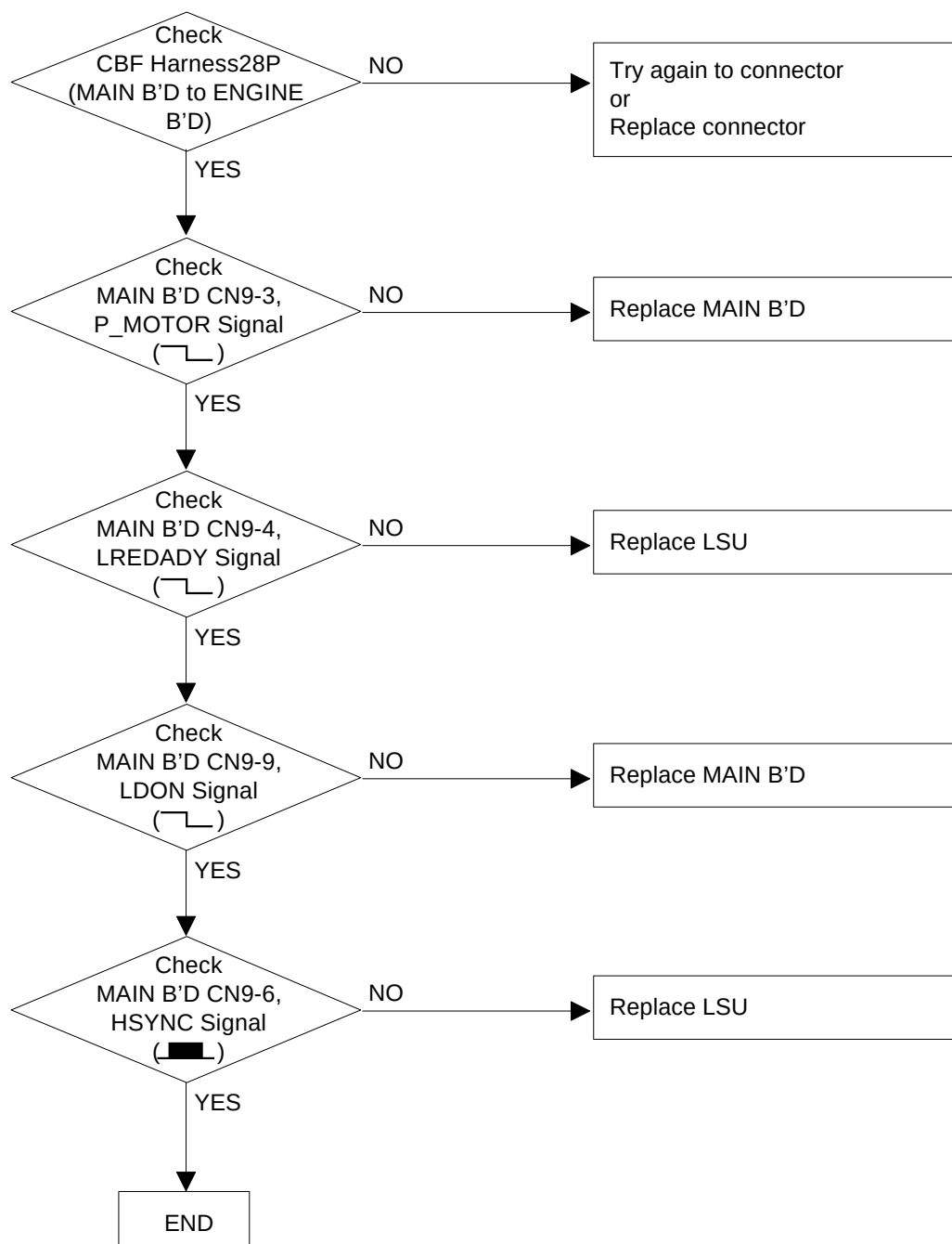
Paper Jam (Mis-feeding)



Paper Jam (Jam1)



LSU Error



Appendix information

The following list shows different materials by model.

The material codes mentioned in the manual are subject to change without prior notice. For the latest exact information, see ITSELF System. (<http://itself.sec.samsung.co.kr>)

SF-515/XAA

DESCRIPTION	SEC.CODE
ASSY PBA MAIN-LIU PBA	JC92-01415B
ELA HOU-FRAME LOWER	JC96-02561A
ELA HOU-OPE FRONT	JC96-02549B
ELA HOU-OPE ASS'Y	JC96-02547B
COVER-M-OPE	JC63-00088B

SF-515/XET

DESCRIPTION	SEC.CODE
ASSY PBA MAIN-LIU PBA	JC92-01415A
ELA HOU-FRAME LOWER	JC96-01774B
ELA HOU-OPE FRONT	JC96-02549G
ELA HOU-OPE ASS'Y	JC96-02547F
COVER-M-OPE	JC63-00088G

SF-515/XEC

DESCRIPTION	SEC.CODE
ASSY PBA MAIN-LIU PBA	JC92-01415A
ELA HOU-FRAME LOWER	JC96-01774B
ELA HOU-OPE FRONT	JC96-02549F
ELA HOU-OPE ASS'Y	JC96-02547C
COVER-M-OPE	JC63-00088F

SF-515/XEU

DESCRIPTION	SEC.CODE
ASSY PBA MAIN-LIU PBA	JC92-01415A
ELA HOU-FRAME LOWER	JC96-01774B
ELA HOU-OPE FRONT	JC96-02549A
ELA HOU-OPE ASS'Y	JC96-02547A
COVER-M-OPE	JC63-00088A

SF-515/XEF

DESCRIPTION	SEC.CODE
ASSY PBA MAIN-LIU PBA	JC92-01415C
ELA HOU-FRAME LOWER	JC96-01774B
ELA HOU-OPE FRONT	JC96-02549E
ELA HOU-OPE ASS'Y	JC96-02547D
COVER-M-OPE	JC63-00088E

SF-515/XIL

DESCRIPTION	SEC.CODE
ASSY PBA MAIN-LIU PBA	JC92-01415B
ELA HOU-FRAME LOWER	JC96-02560A
ELA HOU-OPE FRONT	JC96-02549H
ELA HOU-OPE ASS'Y	JC96-02547G
COVER-M-OPE	JC63-00088H

SF-515/XEG

DESCRIPTION	SEC.CODE
ASSY PBA MAIN-LIU PBA	JC92-01415A
ELA HOU-FRAME LOWER	JC96-01774B
ELA HOU-OPE FRONT	JC96-02549D
ELA HOU-OPE ASS'Y	JC96-02547E
COVER-M-OPE	JC63-00088D

5. Exploded Views and Parts List

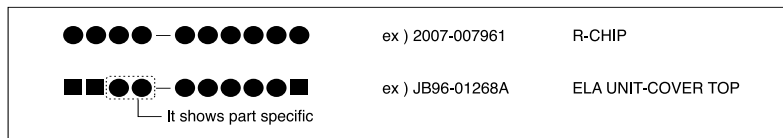
5-1 Main Assembly	page(5-2)
5-2 Shield Engine Unit Assembly	page(5-4)
5-3 Engine Assembly	page(5-6)
5-4 Frame Lower Assembly	page(5-8)
5-5 Fuser Assembly	page(5-10)
5-6 Plate-Upper Unit Assembly	page(5-12)
5-7 OPE Unit	page(5-14)
5-8 Scan Upper Assembly	page(5-15)
5-9 Front Assembly	page(5-16)
5-10 RX Drive Unit Assembly	page(5-18)

- Deal drawings and service parts are declared for the items with higher rate of inferiority and replaceable in the level of service description only.
- If inferiority occurs, you can replace the parts by the unit declared in deal drawings and service items.

Way to observe Part Code & Description

Part code and Description is quoted and controlled by determined standard. Refer to this determined standard, it will help with ordering Part.

- There are two kinds of Part code inscription type.



(● : figure, ■ : character (alphabet))

Type 1 : Controlled by Company : It can be commonly used for all kinds of product SEC produce. Mostly, electronics Parts.

Type 2 : Controlled by Division : It is used or one produce. Mostly, Mostly, mechanical Parts.

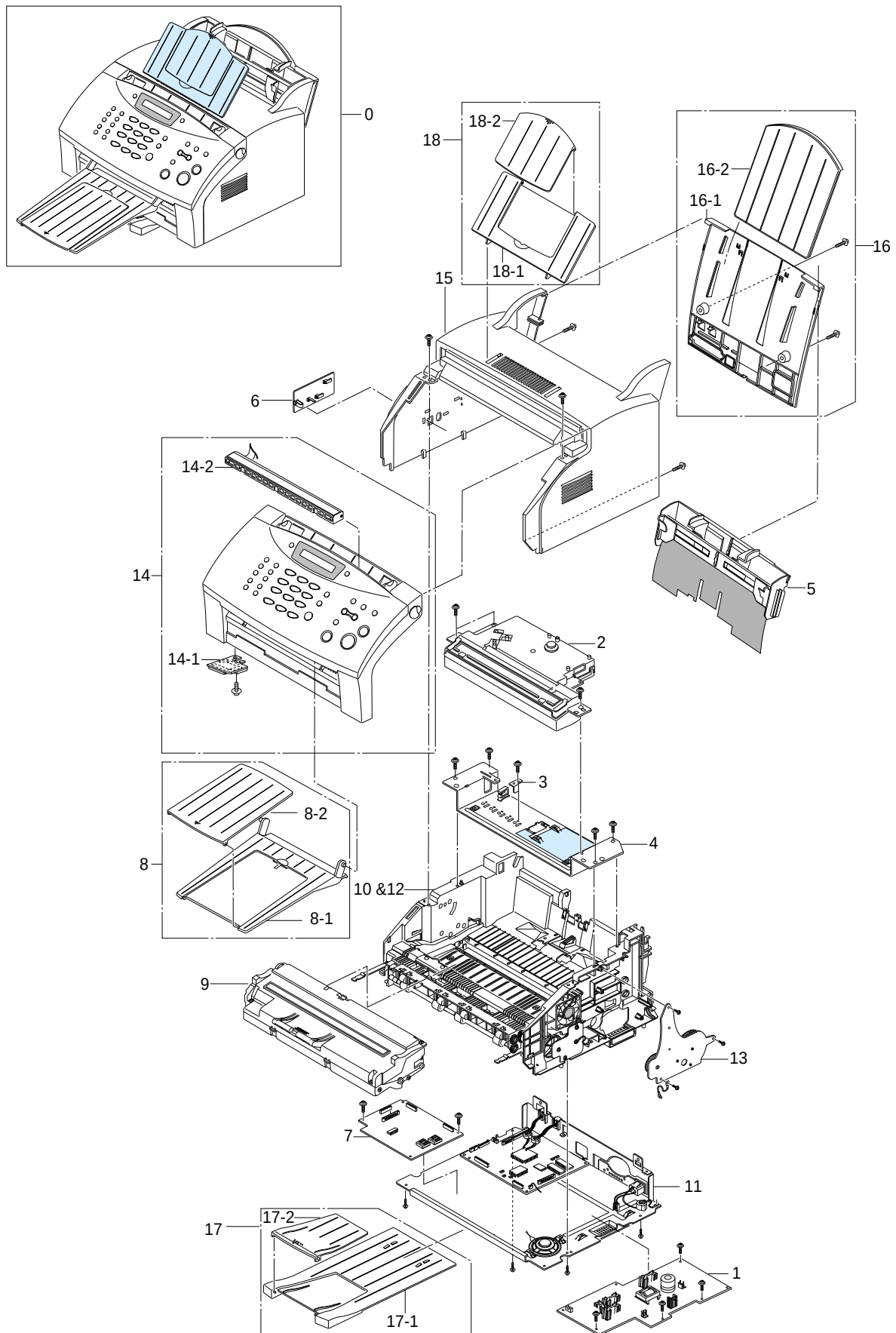
- **A/S privately used part** : It is only used for A/S .

- **Ass'y part** : Assembled by more than 2 Parts. If necessary part is not A/S Part, Ass'y part including necessary par can be used. It is shown in the diagram and drawing of SVC manual.

- Ass'y part and A/S privately used Part is distinguished by part Code and Description. The are inscription type 2. It is recognized by Part character and front side of description.

DIVISION	PART CODE	DESCRIPTION
A/S Private	**81-***** (JB81-00039A)	AS-***** (AS-USE)
ASS'Y Part	**75-***** (JB75-00068A)	MEC-***** (MEC-CHUTE)
ASS'Y Part	**92-***** (JB92-01131A)	PBA ***** (PBA MAIN-CONTROLLER)
ASS'Y Part	**97-***** (JB97-01089A)	MEA ***** (MEA UNIT-PULLEY IDLE)

5-1 Main Assembly

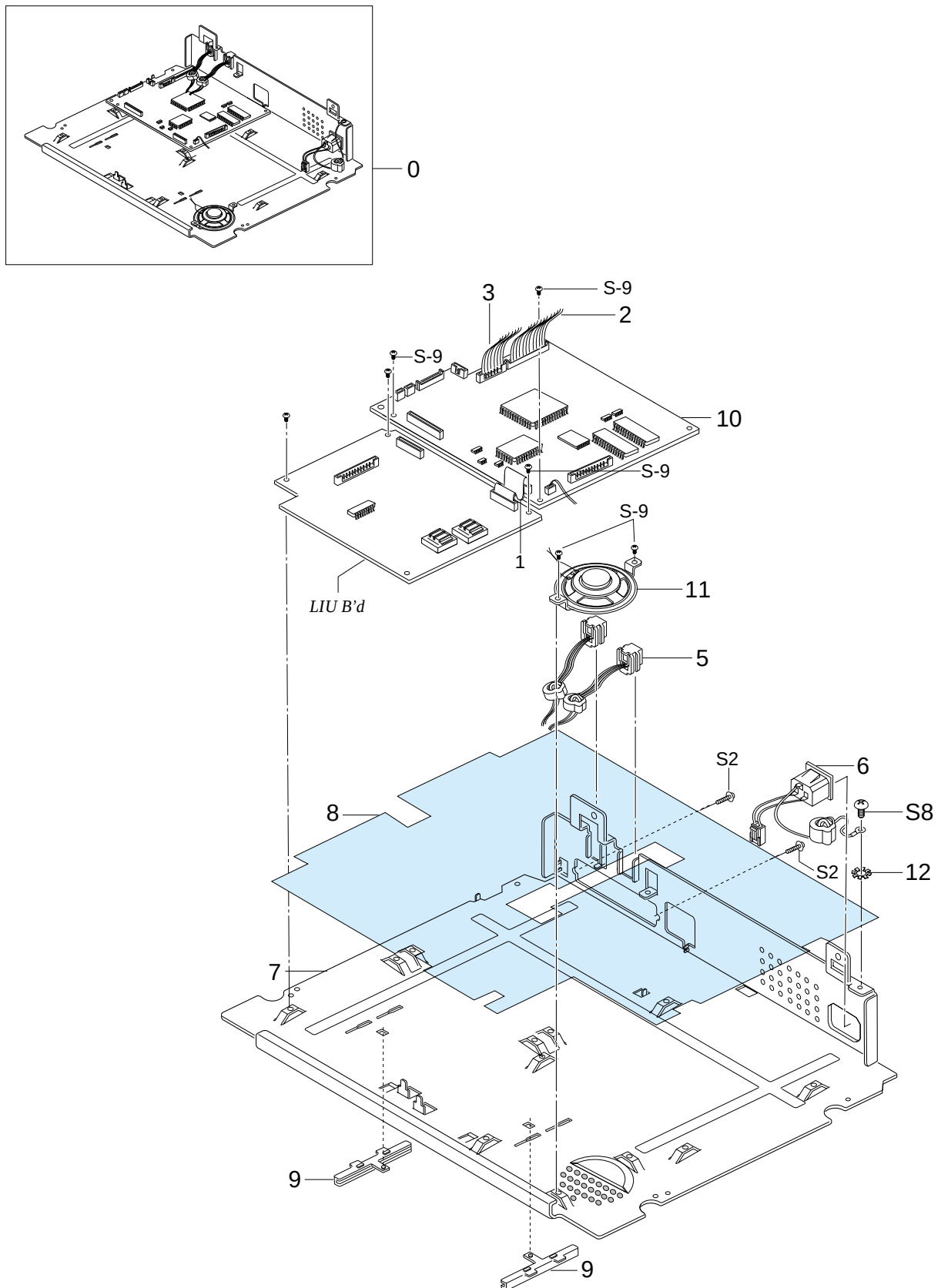


Main Assembly Parts List

O : Service available X : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	SF-515				
1	SMPS-APOLLO(V1)	JC44-00004A	1	O	110V
	SMPS-APOLLO(V2)	JC44-00006A	1	O	220V
2	UNIT-LSU	JC59-00006A	1	O	
3	IPR-PLATE_CHANNEL	JC70-00058A	1	O	
4	MEC-PLATE UPPER	JC75-00057A	1	O	
5	MEC-TRAY	JC75-00062A	1	O	
6	PMO-CAP CRADLE(SF-5100)	JC72-00488A	1	O	
7	PBA MAIN-LIU PBA	Refer to Info.	1	O	
8	MEC-STACKER	JC97-01663A	1	O	
8-1	PMO-STACKER TX(APOLLO)	JC72-00223A	1	O	
8-2	PMO-STACKER TX(B)	*	1	X	
9	ELA-UNIT DEV APO6 E	*	1	X	
10	ELA HOU-ENGINE ASS'Y	*	1	X	
11	ELA HOU-SHIELD ENGINE(SF-515)	*	1	X	
12	ELA HOU-FRAME LOWER	Refer to Info.	1	O	
13	ELA HOU-RX DRIVE	JC96-01755A	1	O	
14	MEA HOU-OPE FRONT	Refer to Info.	1	O	
14-1	PBA MAIN-SCAN	JC81-00441A	1	O	
14-2	CONTACT IMAGE SECSOR	0609-001127	1	O	
15	PMO-COVER TOP	JC72-00128A	1	O	
16	MEC-COVER REAR	JC97-01666A	1	O	
16-1	PMO-COVER_REAR	*	1	X	
16-2	PMO-TRAY_LARGE	*	1	X	
17	MEC-STCKER	JC75-00060A	1	O	
17-1	PMO-STACKER_MAIN	*	1	X	
17-2	PMO-STACKER_SUB	*	1	X	
18	MEA UNIT-CHUTE ASS'Y	JC97-01187D	1	O	
18-1	PMO-CHUTE	*	1	X	
18-2	PMO-DUMMY CHUTE	*	1	X	

5-2 Shield Engine Unit Assembly

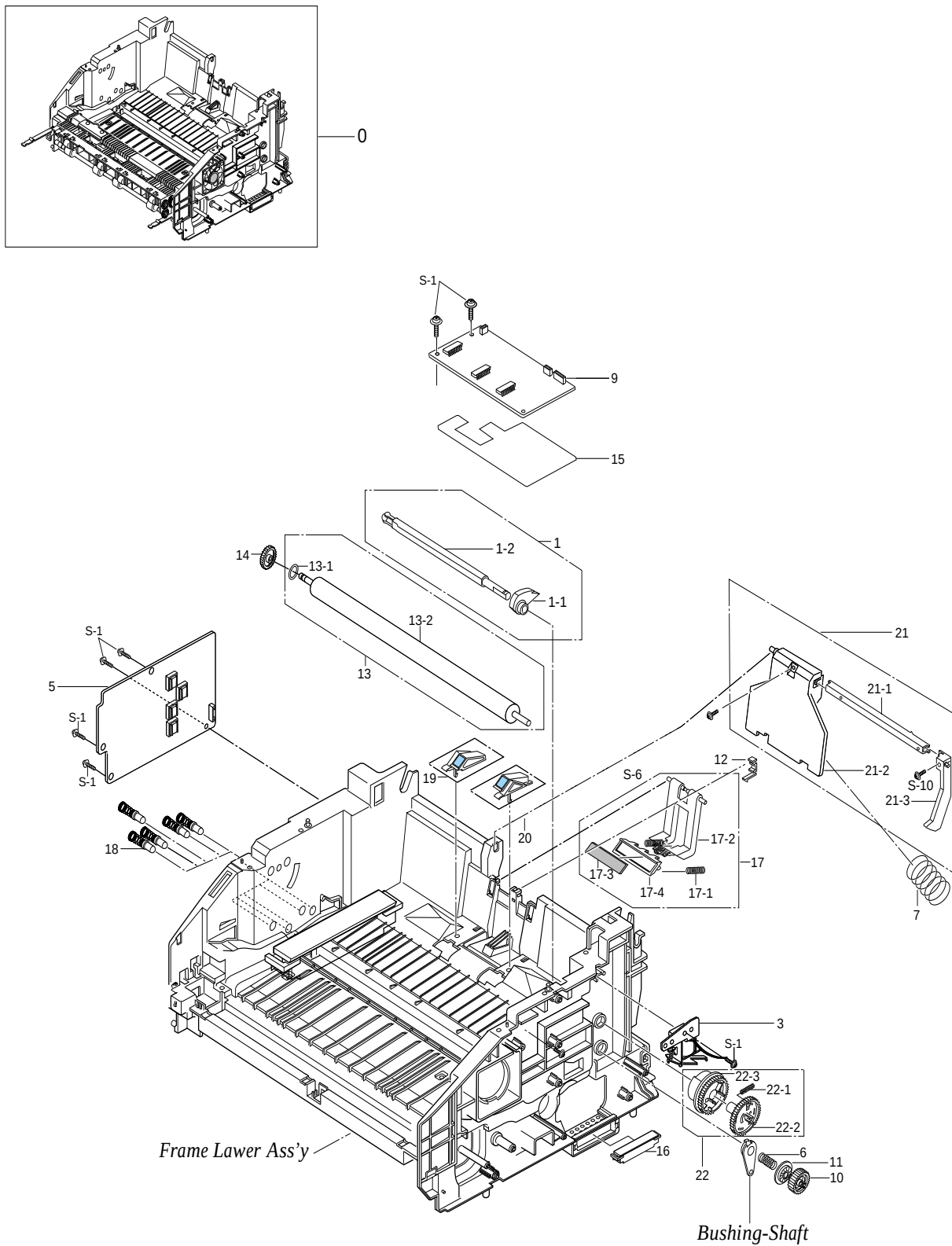


Shield Engine Unit Assembly Parts List

O : Service available X : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	ELA HOU-SHIELD ENGINE(SF-515)	*	1	X	
1	CABLE-FLAT	3809-001161	1	O	
2	CBF HARNESS-LSU	JC39-00043A	1	O	
3	CBF HARNESS-MAIN-HVPS	JC39-00193A	1	O	
4	CBF HARNESS-LIU/HOOK 2	JC39-00174A	1	O	
5	CBF HARNESS-MODULA 2	JC39-00175A	1	O	
6	CBF HARNESS-85MM	JC39-40022A	1	O	INLET
7	IPR-SHIELD ENGINE	JC70-00200A	1	O	
8	IPR-SHILED SMPS	JC70-00263A	1	O	
9	MEC-GUIDE STAKE ASS'Y	JC75-00087A	2	O	
10	PBA MAIN-MAIN	JC92-01414A	1	O	
11	ELA M/MEDIO AUD-SPEAKER	JC96-01607A	1	O	
12	WASHER-E.T	*	1	X	
13	CBF HARNESS-THERMISTOR	JC39-00045A	1	O	
S2	SCREW-MACHINE	6001-000568	2	O	
S8	SCREW-TAPTITE	6003-000221	1	O	
S9	SCREW-TAPTITE	6003-000264	11	O	

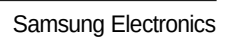
5-3 Engine Assembly



Engine Assembly Parts List

O : Service available X : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	ELA HOU-ENGINE ASS'Y	*	1	X	
1	MEC-CAM PICK UP	JC75-00072A	1	O	
1-1	PMO-CAM_PICKUP	*	1	X	
1-2	PMO-SHAFT_PICKUP	*	1	X	
3	SOLENOID-(APOLLO)	JC33-00002A	1	O	
5	SMPS-HVPS	JC44-00017A	1	O	
6	SPRING-CLUTCH	JC61-00012A	1	O	
7	SPRING-KNOCK UP	JC61-00023A	1	O	
9	PBA MAIN-ENGINE	JC92-01320A	1	O	
10	PMO-GEAR_FEED	JC72-00115A	1	O	
11	PMO-CLUTCH_FEED	JC72-00116A	1	O	
12	PMO-CAP_PAD	JC72-00124A	1	O	
13	MEA RACK-TR ASS'Y	*	1	X	
13-1	PPR-SPACER DR	*	1	X	
13-2	MEC-TRANSFER ROLLER	JC75-00035A	1	O	
14	PMO-GEAR_TRANSFER	JC72-00179A	1	O	
15	PCT-INSULATOR ENG BD	*	1	X	
16	PMO-DUMMY SIDE	*	1	X	
17	MEC-HOLDER PAD	JC75-00156A	1	O	
17-1	SPRING-PAD	JC61-00054A	2	O	
17-2	PMO-HOLDER PAD	JC72-00535A	1	O	
17-3	PMO-HOLDER PAD LARGE	JC72-00536A	1	O	
17-4	RPR-PAD FRICTION	*	1	X	
18	MEC-TERMINAL	JC75-00049A	5	O	
19	MEC-SIDE PAD(L)	JC75-00050B	1	O	
20	MEC-SIDE PAD(R)	JC75-00051B	1	O	
21	MEC-KNOCKUP ASS'Y	JC75-00053A	1	O	
21-1	IPR-BAR_KNOCKUP	*	1	X	
21-2	PMO-PLATE-KNOCKUP	*	1	X	
21-3	PMO-CAM-KNOCKUP	*	1	X	
22	MEC-GEAR PICK UP	JC75-00056A	1	O	
22-1	SPRING-PICK UP GEAR	*	1	X	
22-2	PMO-GEAR_PICKUP,1	*	1	X	
22-3	PMO-GEAR_PICKUP,2	*	1	X	
S7	SCREW-TAPTITE	6003-000196	7	O	
S10	SCREW-TAPTITE	6003-000266	2	O	
S11	SCREW-TAPTITE	6003-000119	17	O	

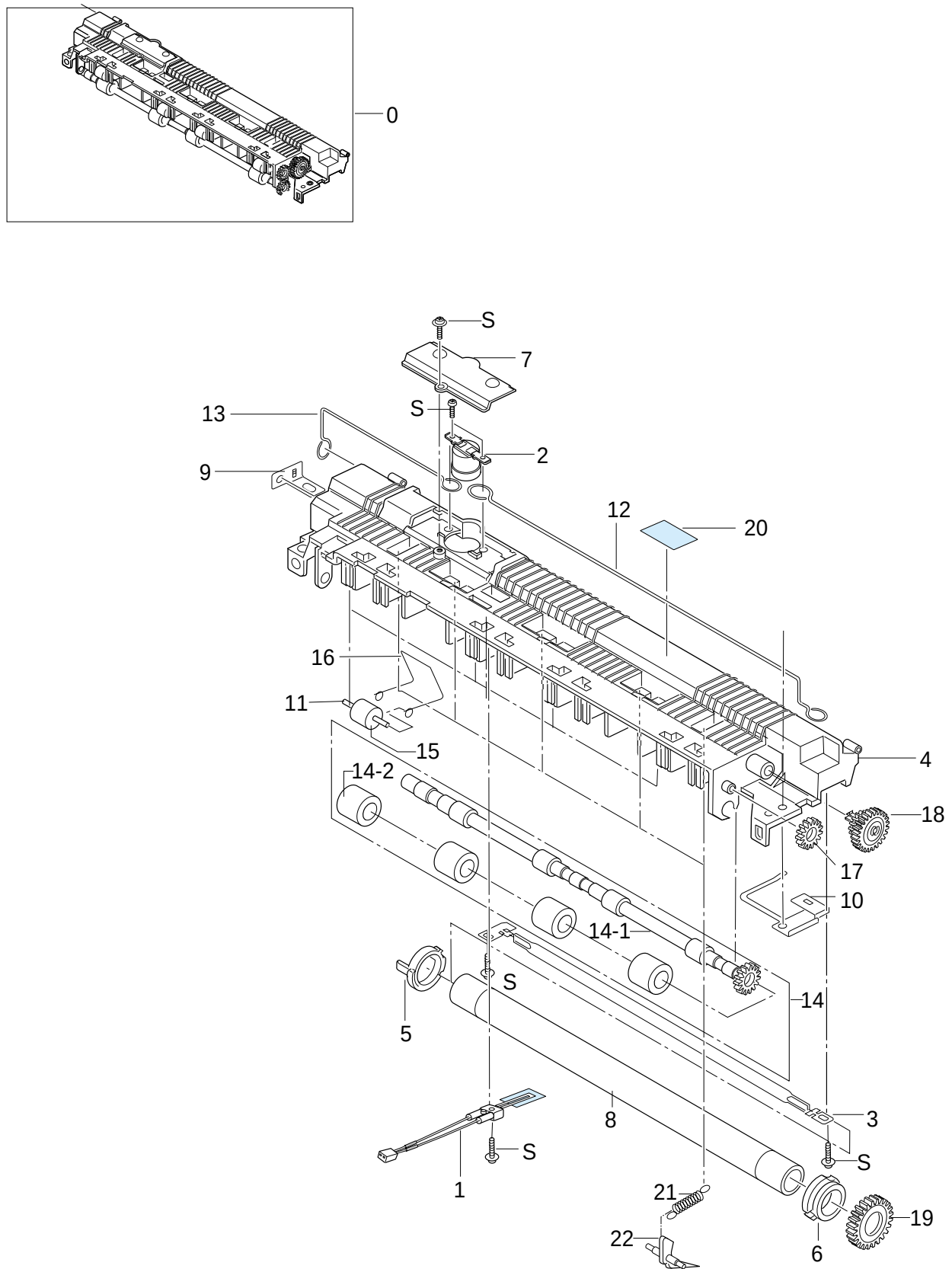


Frame Lower Assembly Parts List

O : Service available X : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	ELA HOU-FRAME LOWER(SF-515)	Refer to Info.	1	O	
1	CBF HARNESS-OPE GND	*	1	X	
2	CBF HARNESS-FUSER	JC39-00042A	1	O	
3	SPRING-P/R (APOLLO)	*	2	X	
4	SPRING-GUIDE DEVE	*	2	X	
5	BEARING-PRESSURE R	*	2	X	
6	IPR-SAW PLATE	*	1	X	
7	IPR-EARTH TRANS	*	1	X	
8	IPR-GROUND GUIDE	*	1	X	
9	IPR-GROUND HVPS	*	1	X	
10	IPR-GROUND_FUSER	*	1	X	
11	IPR-GUIDE-TR	*	1	X	
12	IPR-PLATE-TERMINAL	*	1	X	
13	IPR-GROUND DRIVE	*	1	X	
14	PMO-BUSHING TERMINAL	*	1	X	
15	PMO-ACTUATOR_EXIT	JC72-00130A	1	O	
16	PMO-GUIDE_INPUT	*	1	X	
17	PCT-FILM SAW	*	1	X	
18	PMO-HOLDER PR	JC72-00531A	2	O	
19	PMO-HOLDER EXIT	JC72-00532A	2	O	
20	PMO-FRAME LOWER	JC72-00533A	1	O	
21	PMO-COVER PTL	JC72-00534A	1	O	
23	PMO-CAP PLTE G/DEV R	JC72-41135A	1	O	
24	PMO-CAP PLTE G/DEV L	JC72-41173A	1	O	
25	PMO-STOPPER EXIT	*	2	X	
26	RMO-RUBBER FOOT	*	2	X	
27	MEC-ROLLER FEED	JC75-00054A	1	O	
27-1	RPR-ROLLER FEED	*	2	X	
27-2	MEC-SHAFT FEED	*	1	X	
28	MEC-HOLDER FEED	JC97-01660A	1	O	
28-1	SPRING-ACT, FEED	*	1	X	
28-2	PMO-HOLDER_FEED	*	1	X	
28-3	PMO-BUSHING_FEED	*	2	X	
28-4	PMO-ACTUATOR_FEED	JC72-00119A	1	O	
29	MEC-HOLDER TR L	JC75-00106C	1	O	
29-1	SPRING-TR(300)	*	1	X	
29-2	IPR-PLATE TR	*	1	X	
29-3	PMO-HOLDER TR	JC72-00100C	1	O	
29-4	PMO-BUSHING_TR(L)	JC72-00102A	1	O	
30	MEC-HOLDER TR R	JC75-00107C	1	O	
30-1	SPRING-TR(300)	*	1	X	
30-2	PMO-HOLDER TR	JC72-00100C	1	O	
30-3	PMO-BUSHING_TR(R)	JC72-00101A	1	O	
31	MEC-ROLLER_PR 1210	JC75-00130A	1	O	
32	PBA MAIN-SENSOR B'D	JC92-01197A	1	O	
33	ELA HOU-MOTOR GND	JC96-01579A	1	O	
34	ELA HOU-OPEN SENSOR	JC96-01584A	1	O	
34-1	CBF HARNESS-COVER	JC39-00041A	1	O	
34-2	IPR-BRKT-SENSOR	*	1	X	
35	ELA HOU-PTL ASS'Y	JC96-02312A	1	O	
36	ELA HOU-FUSER 110V	JC81-00439A	1	O	110V
	ELA HOU-FUSER 220V(531P)	JC81-00440A	1	O	220V
37	PMO-BUSHING SHAFT	JG72-40849A	1	O	
38	GEAR-FU_IN 47	JC66-00306A	1	O	
39	PMO-HUB GEAR	JC72-00676A	1	O	
40	GEAR-FU_OUT 47	*	1	X	
41	PMO-GEAR 83/35	JC72-00154A	1	O	
42	IPR-BRACKET FUSER DRV	*	1	X	
43	FAN-DC	3103-001085	1	O	
S6	SCREW-TAPTITE	6003-000152	1	O	
S7	SCREW-TAPTITE	6003-000196	2	O	
S11	SCREW-TAPTITE	6003-000119	17	O	

5-5 Fuser Assembly



Fuser Assembly Parts List

O : Service available X : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	ELA HOU-FUSER 110V	JC81-00439A	1	O	▲ 110V
	ELA HOU-FUSER 220V(531P)	JC81-00440A	1	O	▲ 220V
1	THERMISTOR-NTC	1404-001188	1	O	
2	THERMOSTAT	4712-000001	1	O	
3	LAMP-HALOGEN	4713-001120	1	O	▲ 110V
	LAMP-HALOGEN	4713-001121	1	O	▲ 220V
4	PMO-FUSER_UPPER	*	1	X	
5	PMO-BUSHING H/R L	JC72-00530A	1	O	
6	PMO-BUSHING H/R R	JC72-00529A	1	O	
7	PMO-COVER_THERMOSTAT	*	1	X	
8	NPR-ROLLER HEAT	JC71-00012B	1	O	
9	IPR-ELECTRODE_PLATE	*	1	X	
10	IPR-GROUND_FU	*	1	X	
11	IPR-PIN ROLLER EXIT	*	4	X	
12	IPR-ELECTRODE WIRE1	*	1	X	
13	IPR-ELECTRODE WIRE,S	*	1	X	
14	MEA ETC-SHAFT EXIT	*	1	X	
14-1	PMO-SHAFT_EXIT(Z15)	JC72-00150A	1	O	
14-2	RMO-RUBBER_EXIT	*	4	X	
15	PMO-ROLLER_IDLE EXIT	JC72-00567A	4	O	
16	SPRING-EXIT	JC61-00017A	4	O	
17	PMO-GEAR_EXIT_DRV16	*	1	X	
18	PMO-GEAR_EXIT_IDLE	*	1	X	
19	GEAR-FUSER 1210	JC66-00037B	1	O	
20	LABEL(R)-CAU_HOT_FU	*	1	X	
21	SPRING-CLAW	*	5	X	
22	PMO-GUIDE CLAW	*	5	X	
S	SCREW-TAPTITE	6003-000119	5	O	
S	SCREW-TAPTITE	6003-000196	1	O	

5-6 Plate-Upper Unit Assembly

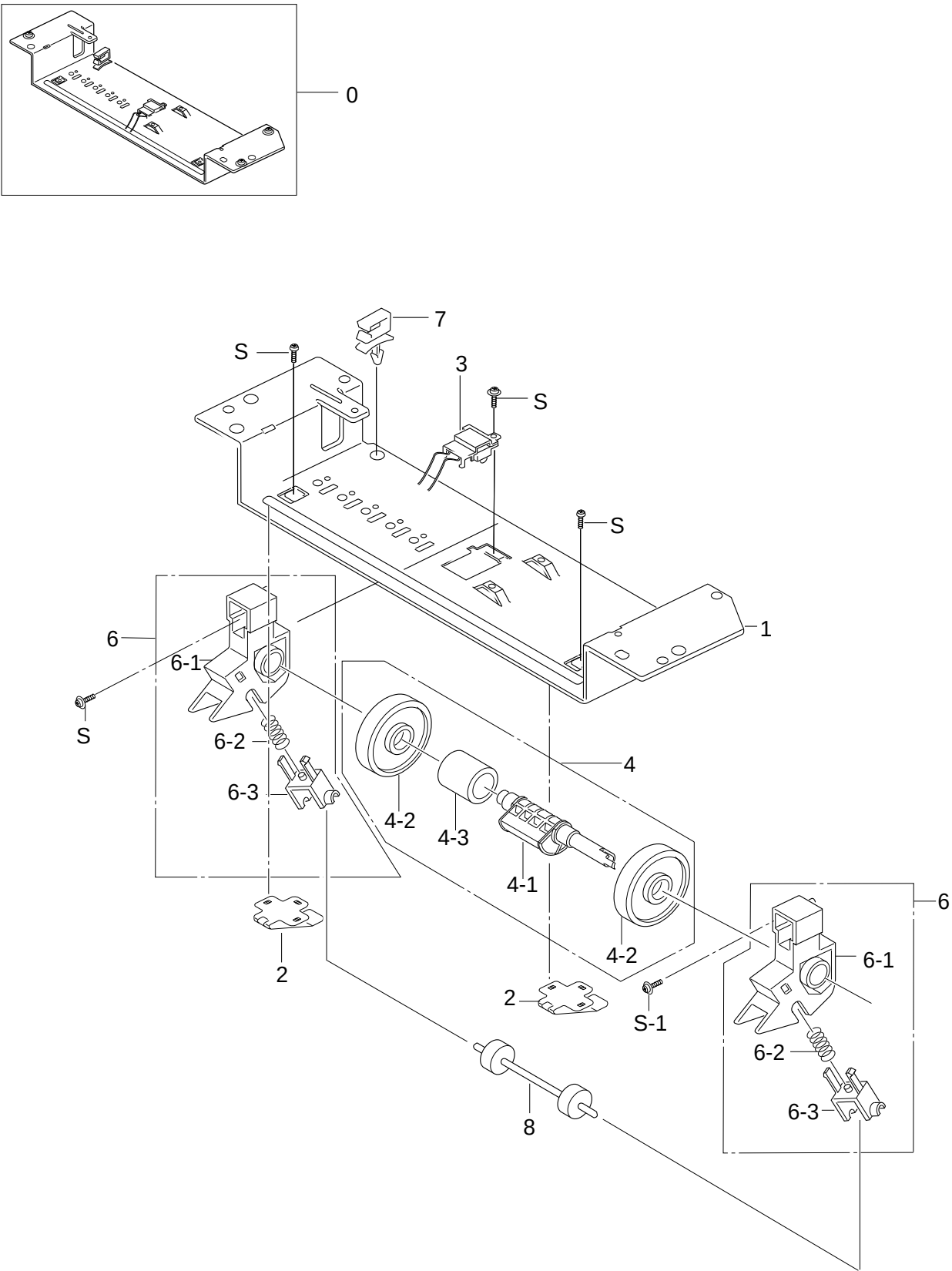
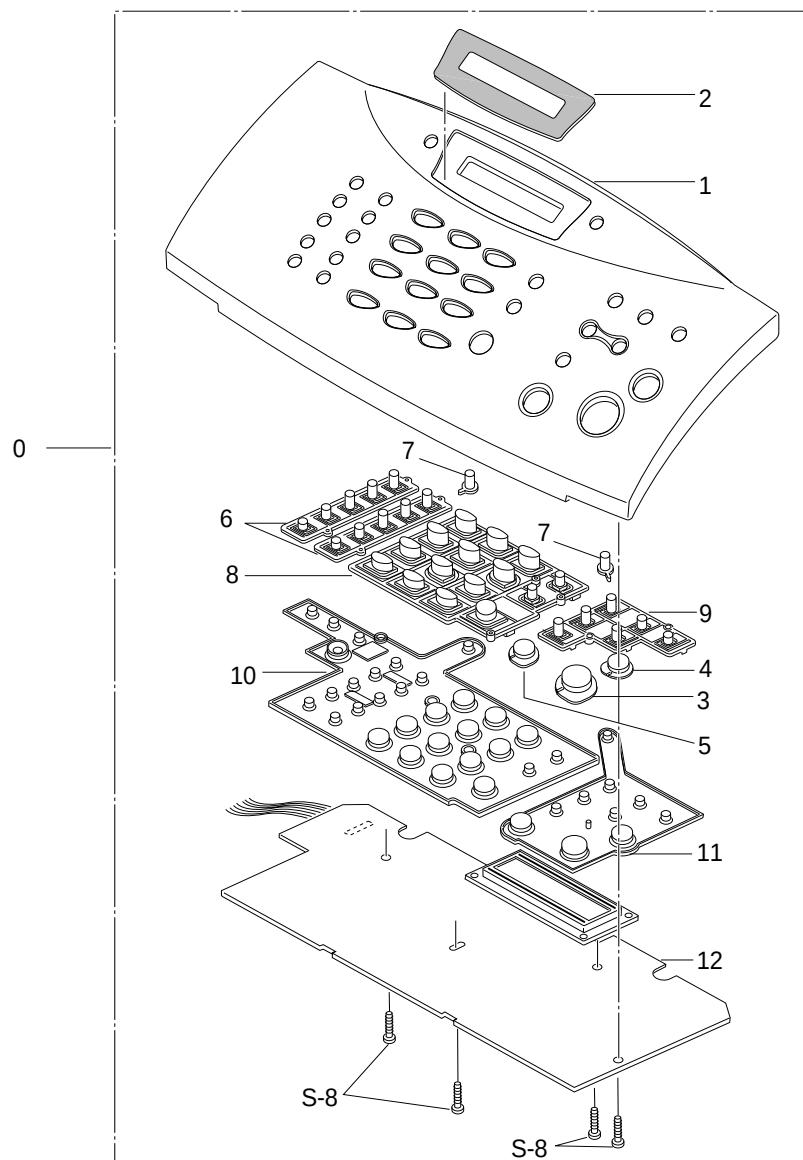


Plate-Upper Unit Assembly Parts List

O : Service available X : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	MEC-PLATE UPPER	JC75-00057A	1	O	
1	IPR-UPPER-PLATE	*	1	X	
2	IPR-PLATE SPRING DEV	JC70-10223A	2	O	
3	ELA UNIT-FUSE DEVE	*	1	X	
4	MEA ETC-ROLLER PICK UP	*	1	X	
4-1	PMO-HOUSING_PICKUP	JC72-00109A	1	O	
4-2	RMO-ROLLER_PICKUP	*	1	X	
4-3	PMO-IDLE_PICKUP	*	2	X	
6	MEA ETC-IDLE FEED	*	2	X	
6-1	PMO-HOLDER_PICKUP	*	1	X	
6-2	SPRING-FEED	*	1	X	
6-3	PMO-HOLDER_IDLE,FEED	*	1	X	
7	CABLE CLAMP	6502-000130	1	O	
8	ICT-ROLLER IDEL FEED	*	1	X	
S5	SCREW-TAPTITE	*	2	X	
S10	SCREW-TAPTITE	6003-000266	1	O	
S10	SCREW-TAPTITE	6003-000266	2	O	

5-7 OPE Unit

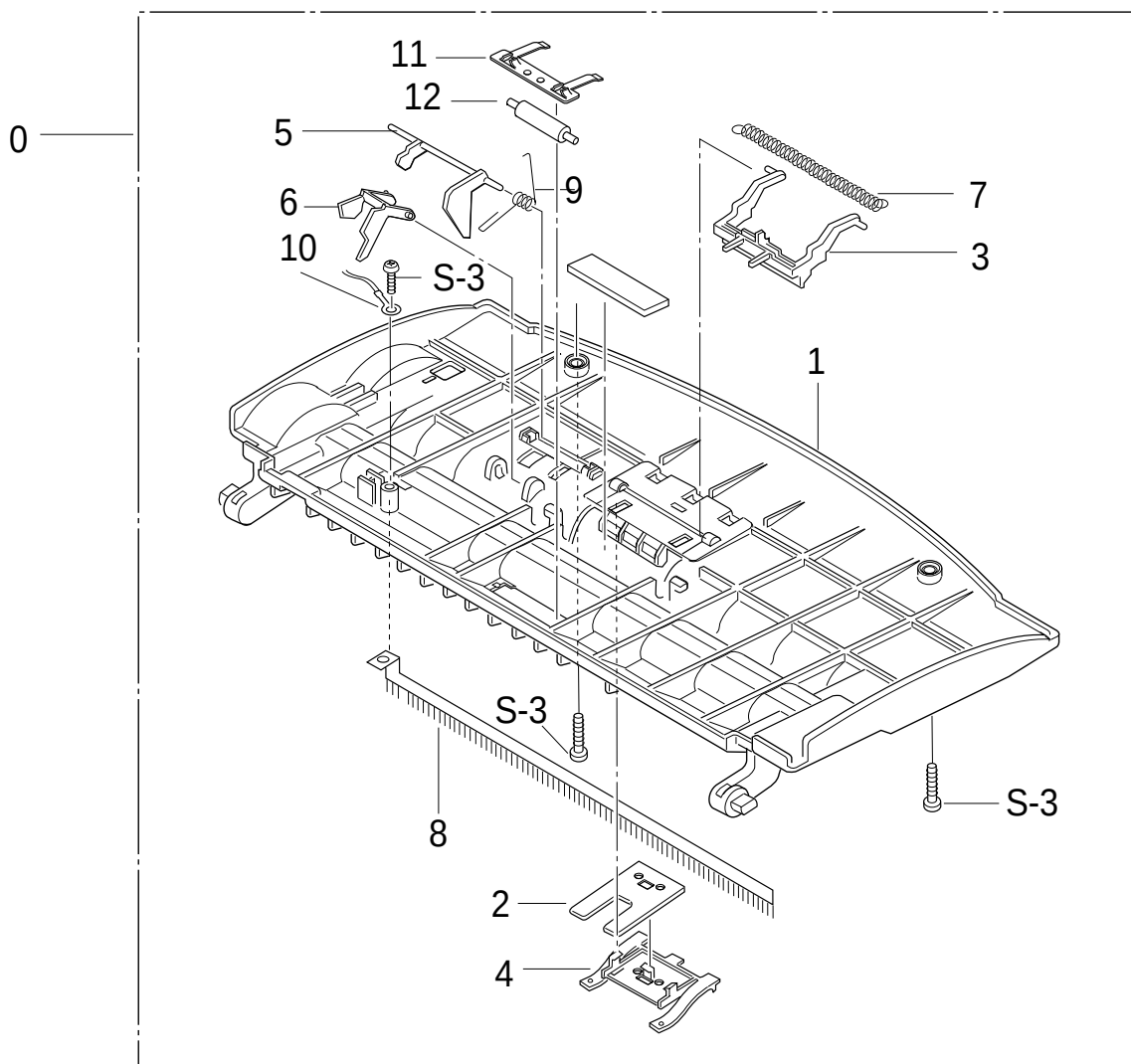


OPE Unit Parts List

O : Service available X : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	ELA HOU OPE ASSY	Refer to Info.	1	O	
1	COVER OPE	*	1	X	
2	PMO-WINDOW_LCD	*	1	X	
3	KEY-START	*	1	X	
4	KEY-COPY	JB72-00102A	1	O	
5	KEY-STOP	JB72-00108A	1	O	
6	KEY-ONE TOUCH	JC72-00409A	2	O	
7	KEY-RESOLUTION	*	2	X	
8	KEY-TEL	JB72-00100A	1	O	
9	KEY-FUNCTION	JC72-00410A	1	O	
10	RPR-CONTACT-RUBBER A	*	1	X	
11	RPR-CONTACT-RUBBER B	*	1	X	
12	PBA-MAIN OPE	JC92-01156A	1	O	
S-8	SCREW-TAPTITE	*	4	X	

5-8 Scan Upper Assembly

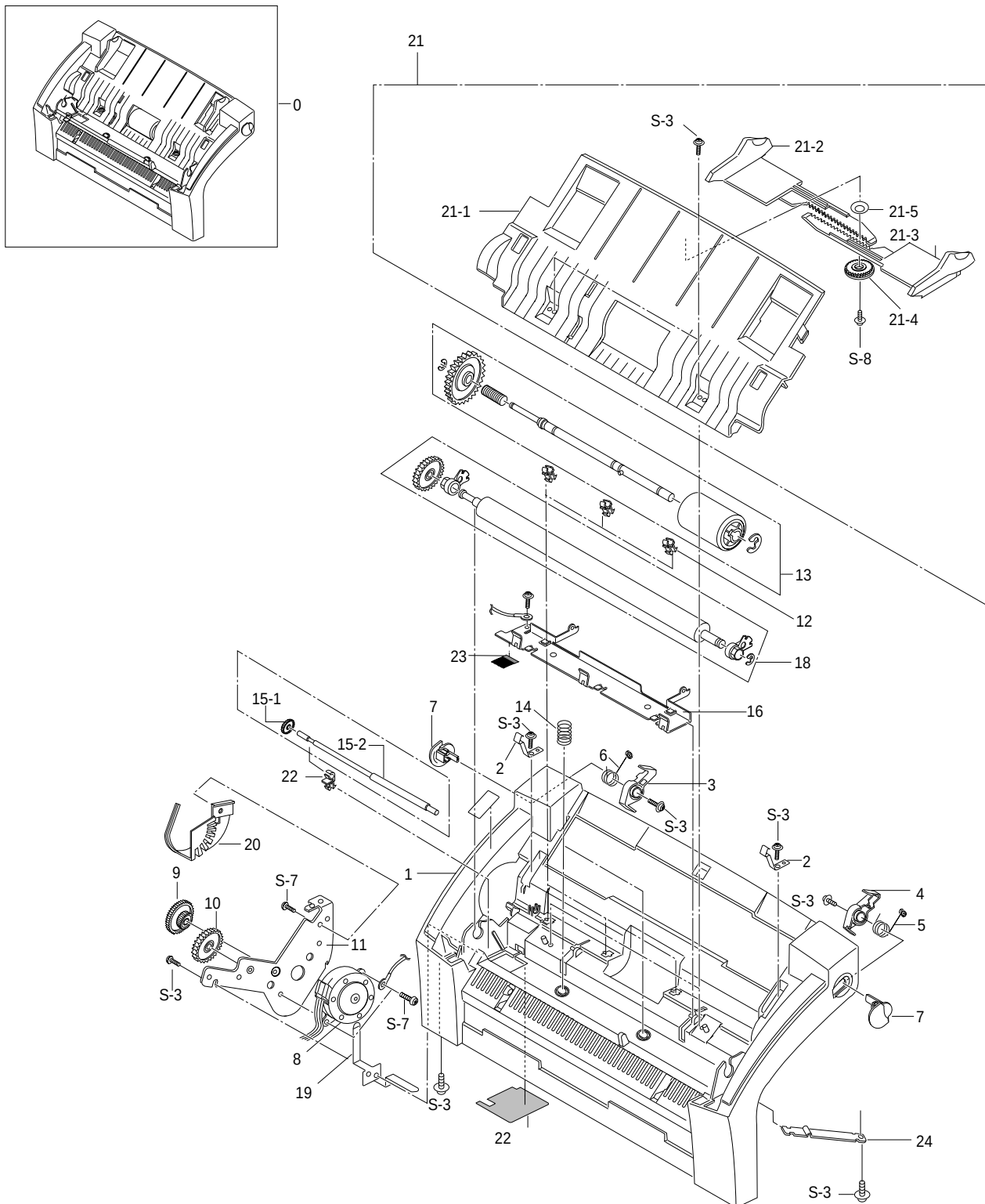


Scan Upper Assembly Parts List

O : Service available X : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	ELA HOU SCAN UPPER	*	1	X	
1	PMO-SCAN UPPER FRAME	*	1	X	
2	RUBBER-ADF	JC73-00032A	1	O	
3	SUPPORT-ADF	JG72-40043A	1	O	
4	HOLDER-RUBBER	JG72-40044A	1	O	
5	LEVER-SENSOR DOC	JB72-41247A	1	O	
6	LEVER-SENSOR SCAN	*	1	X	
7	SPRING-COIL	JG70-40514A	1	O	
8	ANTISTATIC-BRUSH	JB75-00051A	1	O	
9	SPRING-ETC SENSOR	*	1	X	
10	CBF-HARNESS SCAN GND	*	1	X	
11	IRP-PLATE PINCH ROLL	*	1	X	
12	PMO-ROLLER PINCH STACKER	*	1	X	
S-3	SCREW-TAPTITE	*	1	X	

5-9 Front Assembly

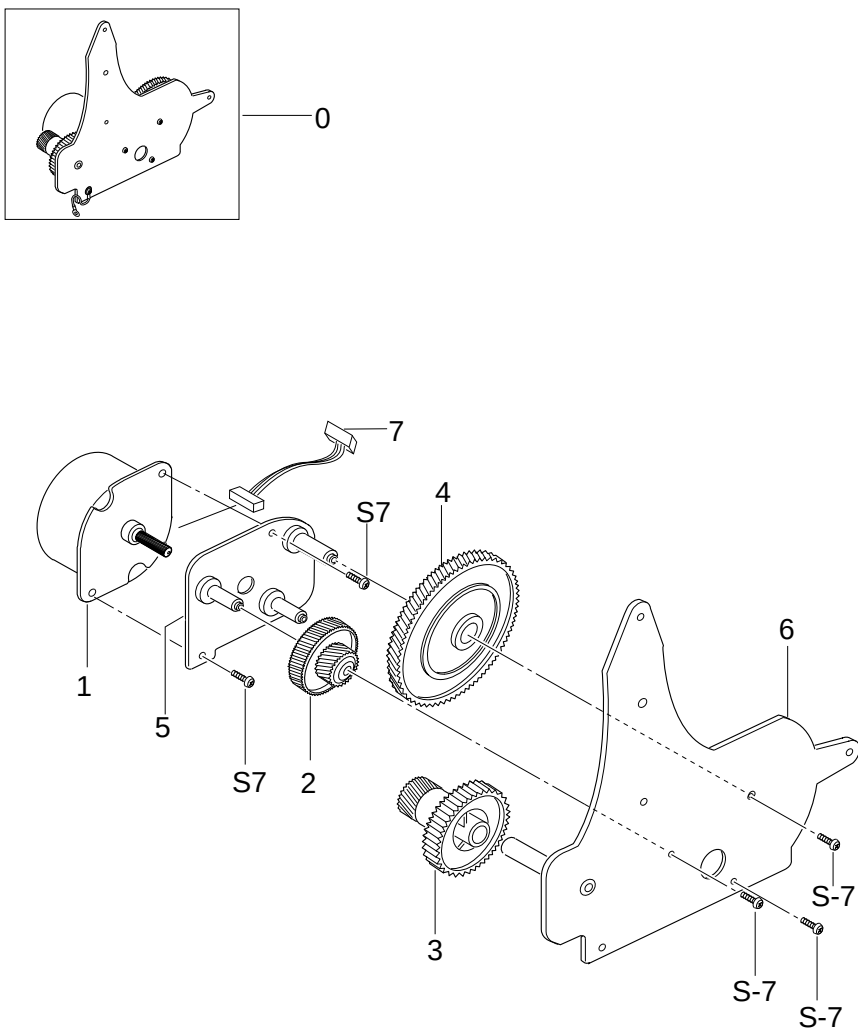


Front Assembly Parts List

O : Service available X : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	ELA HOU FRONT ASSY	*	1	X	
1	PMO-SCAN FRONT FRAME	*	1	X	
2	LOCKER-TX	JG64-30001A	2	O	
3	PMO-OPEN LOCKER L	*	1	X	
4	PMO-OPEN LOCKER R	*	1	X	
5	SPRING-LOCKER R	*	1	X	
6	SPRING-LOCKER L	*	1	X	
7	OPEN-BUTTON	*	2	X	
8	SCAN MOTOR	3101-001203	1	O	
9	PMO-GEAR_73/21/13	*	1	X	
10	PMO-GEAR_IDLER 50	*	1	X	
11	IPR-BRACKET_SCAN(0.85V)	*	1	X	
12	PMO-BUSHING SHAFT	*	3	X	
13	MEA ETC-ROLLER ADF	*	1	X	
14	SPRING ETC-CIS	*	2	X	
15	MEC-ROLLER STACKER	JC75-00082A	1	O	
15-1	GEAR STACKER(Z20)	*	1	X	
15-2	MEC-ROLLER STACKER	*	1	X	
16	IPR-GUIDE_CIS	*	1	X	
17	CBF HARNESS-SCAN/CIS(200)	JC39-00049A	1	O	
18	MEC-ROLLER WHITE	*	1	X	
19	IPR-PLATE_GROUND	*	1	X	
20	PMO-COVER-GEAR	*	1	X	
21	ELA ETC GUIDE PAPER	*	1	X	
21-1	PMO-GUIDE PAPER	*	1	X	
21-2	PMO-GUIDE DOC L	*	1	X	
21-3	PMO-GUIDE DOC R	*	1	X	
21-4	PMO-GEAR PINION	JG66-40003A	1	O	
21-5	MPR-RING CHARGE	*	1	X	
22	PMO-BUSHING SHAFT(EXIT)	*	1	X	
23	MEC-ANTSTATIC BRUSH	*	1	X	
24	STOPPER-EXIT	JC72-41396B	1	O	
S-3	SCREW TAPTITE	*	10	X	
S-7	SCREW MACHINE	*	3	X	
S-8	SCREW TAPTITE	*	1	X	
S-7	SCREW-TAPTITE	*	2	X	

5-10 RX Drive Unit Assembly



RX Drive Assembly Parts List

O : Service available X : Service not available					
No.	Description	SEC.Code	Q'ty	SA	Remark
0	ELA HOU-RX DRIVE	JC96-01755A	1	O	
1	MOTOR-STEP	JC31-00005A	1	O	
2	PMO-GEAR_71/28	*	1	X	
3	PMO-GEAR_73/22	*	1	X	
4	PMO-GEAR_132/19	*	1	X	
5	IPR-BRKT_MOTOR	*	1	X	
6	IPR-BRKT_GEAR	JC70-00129A	1	O	
7	CBF-HARNESS_MOTOR	JC39-00110A	1	O	
S-7	SCREW-MACHINE	6001-000131	5	O	YELLOW

6. Block Diagram

